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WOOD®

THE WORLD'S LEADING WOODWORKING MAGAZINE

JANUARY 1993 • ISSUE NO. 58
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HEIRLOOM BLANKET CHEST
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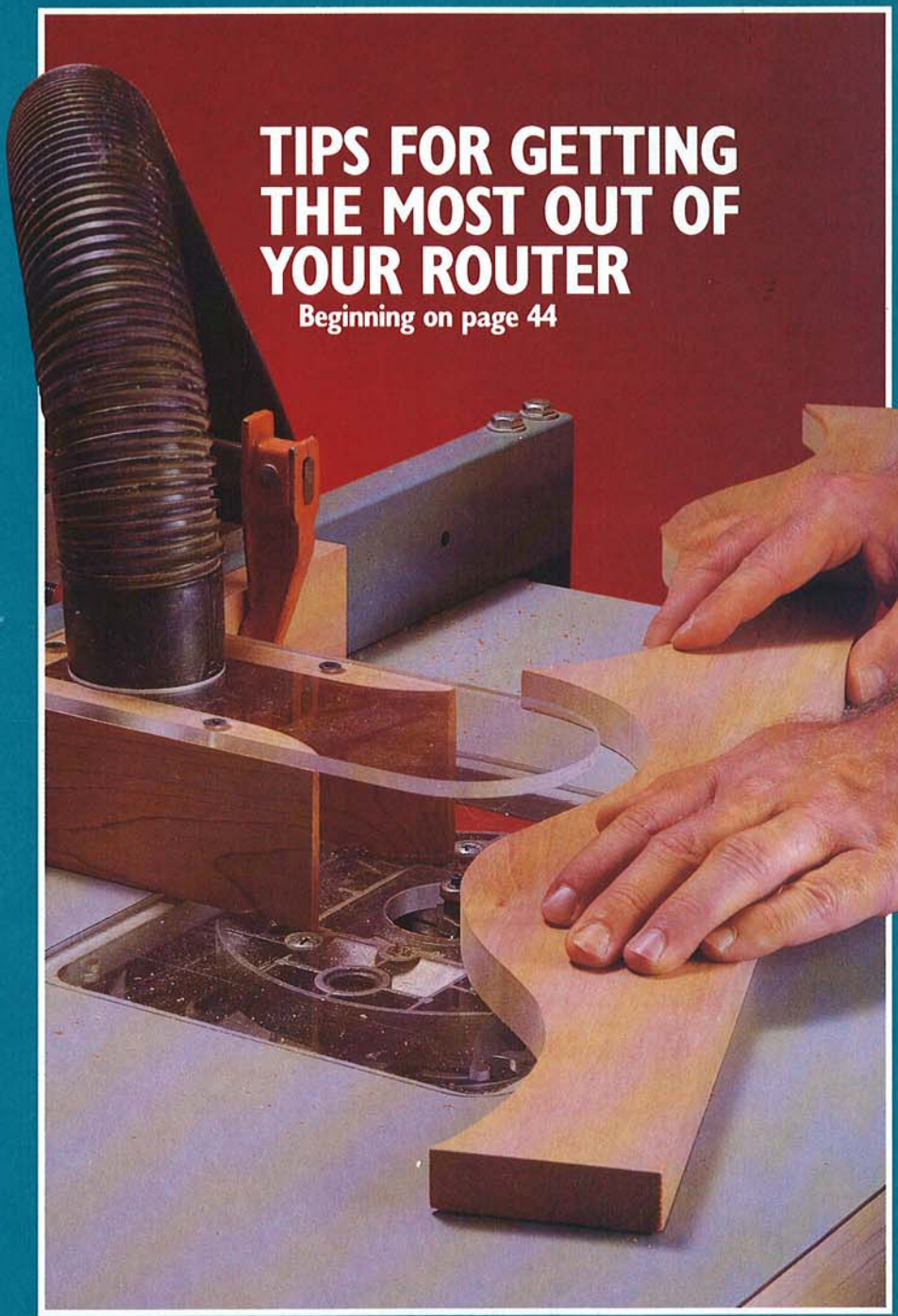
ROUTER HELPERS GALORE!

- FENCE SYSTEM
- RETROFIT TABLE
- 8 TECHNIQUES
- INCRA JIG

8 SUREFIRE WAYS TO STRIP AN OLD FINISH

FUN PROJECTS!

Woven-wood hamper
Turned shelf clock
Welcome sign
Carved trout
Magazine rack
Bird feeder



TIPS FOR GETTING THE MOST OUT OF YOUR ROUTER

Beginning on page 44

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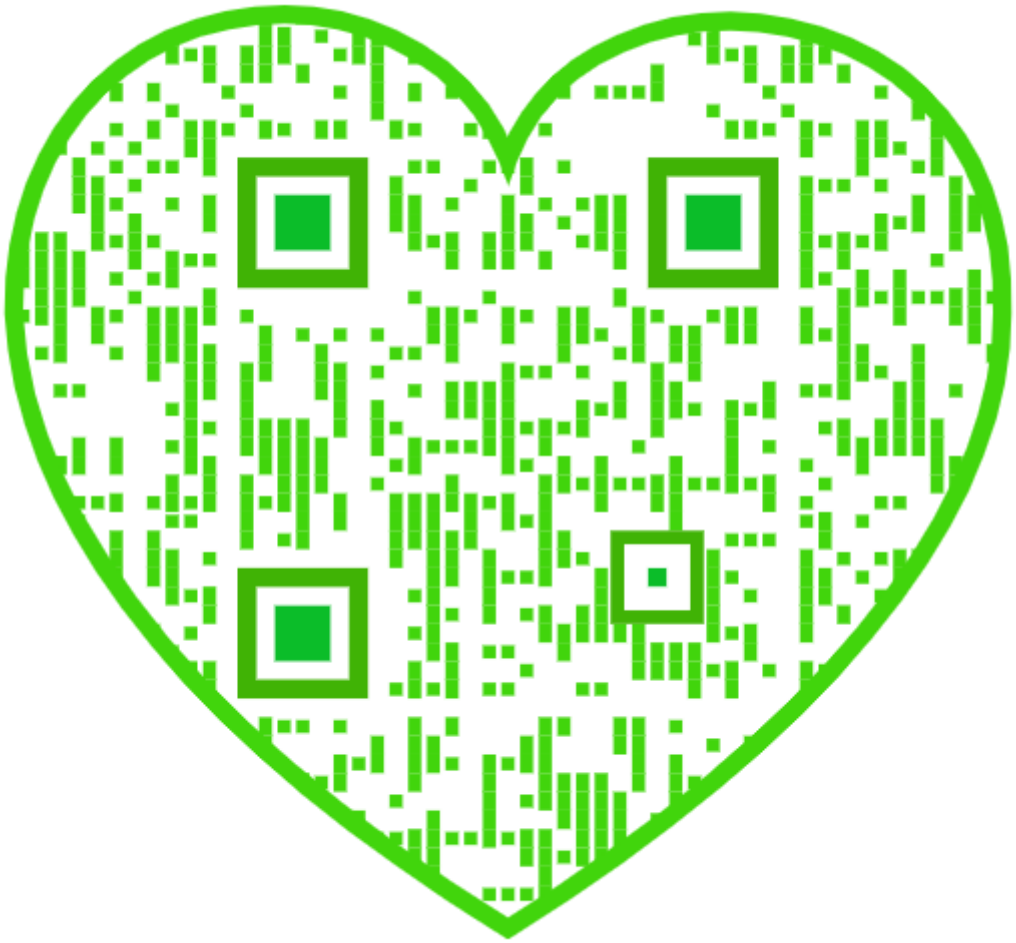

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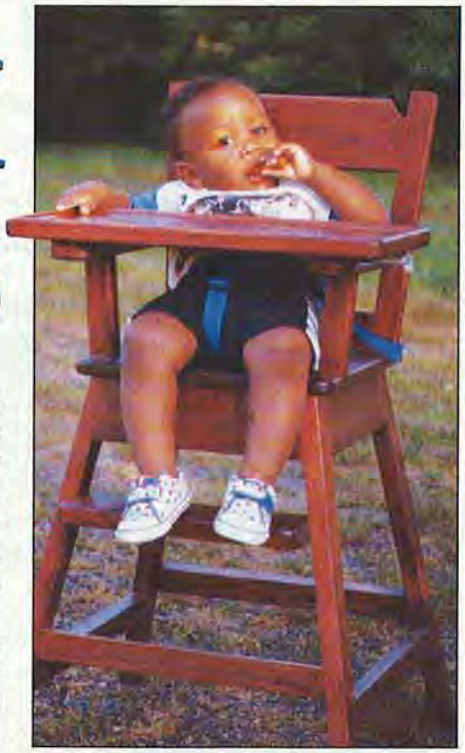
THE EDITOR'S ANGLE

A TALE OF 2 KENNYS



For the past several months, I've had the photo you see at *right* propped up on my desk, and every time I glance at it, I smile. I'm sure, too, that 15-month-old Kenneth Leron Simms, our little star, will treasure it in years to come.

It turns out that Kenneth Bruce Simms, Kenny's dad, made little Kenny the high chair we featured in issue 51 of *WOOD®* magazine. And a mighty fine job he did of it, too. But that's not surprising. You see, Kenny Sr., a *WOOD* magazine reader for about 2 1/2 years now, earns his living as a cabinetmaker. In fact, he owns a business called Nifty Crafts and Carpentry in Hanover, Maryland.

When we first called Kenny Sr. to find out more about him, we really didn't get all the information we needed for this column because Kenny Sr. just didn't have much to say. But I lucked out with our second call because I was able to talk to Ronnie, his older sister.

Ronnie, who says that she and Kenny Sr. are very close as brother and sister, told me that he's so shy and modest that he never talks about how talented a woodworker he is. "But he can do everything," according to older sis.

In another display of familial affection, Ronnie said that she's never seen two more responsible husbands and fathers than Kenny Sr. and his brother Michael. Now, that's a proud sister talking.

And when I asked Ronnie about her little nephew, who appears—at least in this photo—to have impeccable table manners, she replied quickly. "He's very smart, and he picks up everything so easily." Nothing like good old-fashioned family support.

Ronnie, who babysits Kenny frequently, did admit to one small foible of this toddler, though. "Sometimes he eats one bite, and then refuses anything else." Sounds like a typical finicky man, doesn't he? Nice job with the high chair, Kenny Sr. Keep up the good work.

Larry Clayton

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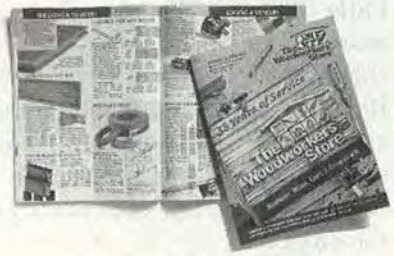

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This issue's cover wood grain: poplar *Cover photograph: Wm. Hopkins*

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WOOD PROFILE
Black willow: stock for caskets, cricket bats, and wooden legs 25
Found in moist bottomlands from the Rocky mountains to the Atlantic ocean, this forest member excels at filling some very special needs.

CRAFTSMAN CLOSE-UP
Making a living from waste wood 27
Transforming pallets of redwood short cuts into birdhouses and feeders, Oregon's Gary Schrodt started a business that today enjoys nationwide distribution.

SURVIVAL GUIDE
The Incra Jig 32
Count the ways this clever jig, and another by JoinTECH, can add to your bag of woodworking tricks and improve your precision.

CARVING
One great catch 34
Land a trophy trout with the full-sized patterns and instructions found here. It's one tabletop showpiece that won't go unnoticed.

Woven-wood hamper 38
No need to hide your dirty laundry in the closet. With this ventilated container, you can give it attractive storage and add a welcomed accent to your bedroom's decor.

The ultimate router-fence system 44
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Router retrofit 48
Make your tablesaw perform double duty by attaching our high-quality router extension table to it.

SHOP-TESTED TECHNIQUES
Make the most of your router 50
Making end-grain cuts and small moldings, using stile-and-rail bits—these are but a few of the eight problem-solvers featured here.

Oak-paneled blanket chest 56
Looking for distinctive, roomy storage for those extra blankets and quilts? Try this project out for size.

8 time-tested strategies for removing wood finishes 62
Prepare that old antique you bought at an auction for refinishing with these safe and reliable pointers.

THE CRAFT SHOP
On-wall magazine rack 64
Keep your copies of *Time*, *Newsweek*, and *WOOD®* magazine in this fitting storage project. We used bird's-eye maple to enhance the looks.

Glad to see you 66
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Rustic redwood restaurant 68
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TURNING
Courtly clock 70
Three turnings and a routed wood base make this shelf clock simple but elegant.

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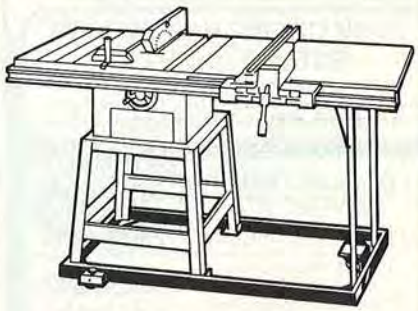

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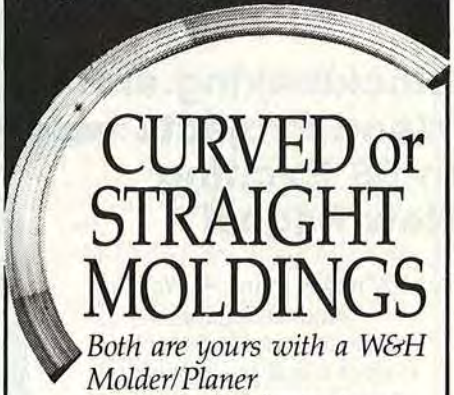

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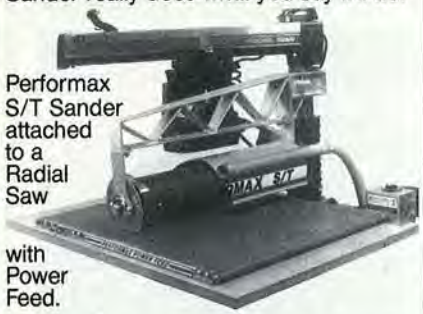

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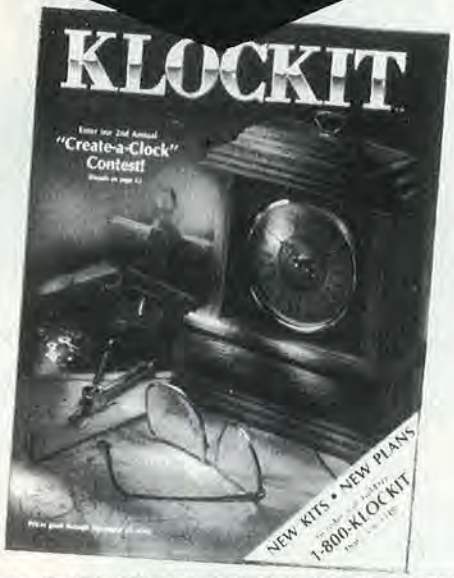

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January 1993 • Vol. 10, No. 1 • Issue No. 58

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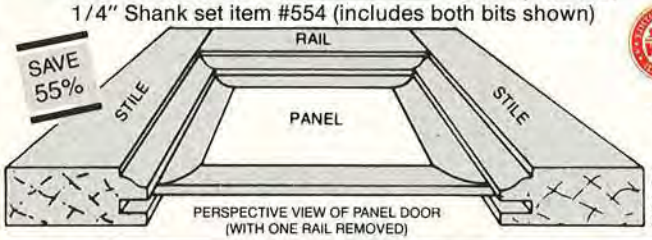

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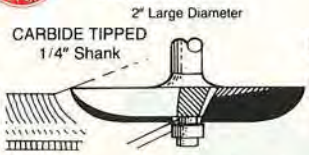

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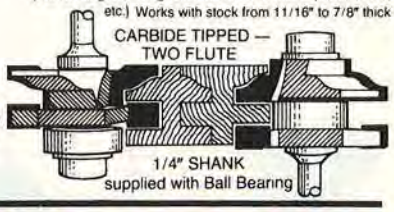

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#355		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/4"	$17.00
#655		1/2" Round Over	1/2" R	1 1/2"	3/4"	1/2"	$17.00
#656		3/4" Round Over	3/4" R	2"	7/8"	1/2"	$21.00
#199		Multiform Moulding	Unlimited Patterns	2 1/4"	2"	1/2"	$40.00
#205		1/4" Cove	1/4" R	1"	1/2"	1/4"	$12.00
#206		3/8" Cove	3/8" R	1 1/4"	9/16"	1/4"	$13.00
#207		1/2" Cove	1/2" R	1 1/2"	5/8"	1/4"	$14.00
#643		1/2" Cove	1/2" R	1 1/2"	5/8"	1/2"	$15.00
#208		3/4" Cove	3/4" R	1 7/8"	3/4"	1/2"	$26.00
#231		5/32" Roman Ogee	5/32" R	1 1/4"	15/32"	1/4"	$16.00
#232		1/4" Roman Ogee	1/4" R	1 1/2"	3/4"	1/4"	$17.00
#506		1/2" Pattern	Flush Trim	1/2"	1"	1/4"	$15.00
#508		3/4" Pattern	Flush Trim	3/4"	1"	1/4"	$17.00
#366		1/8" Slot Cutter	3/8" Deep	1 1/4"	1/8"	1/4"	$14.00
#368		1/4" Slot Cutter	3/8" Deep	1 1/4"	1/4"	1/4"	$14.00
#204		3/8" Rabbeting	3/8" Deep	1 1/4"	1/2"	1/4"	$13.00
#670		3/8" Rabbeting	3/8" Deep	1 1/4"	1/2"	1/2"	$14.00

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#212		1/2" Core Box	round nose	1/2"	11/32"	1/4"	$13.00
#418		3/4" Core Box	round nose	3/4"	5/8"	1/4"	$15.00
#213		1" Core Box	round nose	1"	3/4"	1/2"	$17.00
#548		Lockmitre		2"	7/8"	1/4"	$32.00
#214		1/4" Straight	plunge cutting	1/4"	3/4"	1/4"	$ 6.50
#216		3/8" Straight	plunge cutting	3/8"	1"	1/4"	$ 6.50
#474		1/2" Straight	plunge cutting	1/2"	1"	1/4"	$ 7.00
#219		3/4" Straight	plunge cutting	3/4"	1"	1/4"	$ 9.50
#779		3/4" Straight	plunge cutting	3/4"	1 1/2"	1/2"	$10.00
#462		1/2" Bull Nose	1/2" Dia. of Circle		3/4"	1/4"	$16.00
#464		3/4" Bull Nose	3/4" Dia. of Circle		1"	1/4"	$21.00
#764		3/4" Bull Nose	3/4" Dia. of Circle		1"	1/2"	$21.00
#545		Tongue & Groove	Straight	15/8"	1"	1/4"	$29.00
#845		Tongue & Groove	Straight	15/8"	1"	1/2"	$29.00
#546		Tongue & Groove	Wedge	13/16"	1"	1/4"	$29.00
#846		Tongue & Groove	Wedge	15/8"	1"	1/2"	$29.00
#450		1/8" Beading	1/8" R	3/4"	3/8"	1/4"	$11.00
#233		1/4" Beading	1/4" R	1"	1/2"	1/4"	$13.00
#454		3/8" Beading	3/8" R	1 1/4"	5/8"	1/4"	$15.50
#455		1/2" Beading	1/2" R	1 1/2"	3/4"	1/4"	$17.00
#500		3/8" Flush	Trimming	3/8"	1/2"	1/4"	$ 7.00
#501		3/8" Flush	Trimming	3/8"	1"	1/4"	$ 7.50
#503		1/2" Flush	Trimming	1/2"	1"	1/4"	$ 8.50
#221		1/2" Flush	Trimming	1/2"	1 3/16"	1/2"	$ 8.00
#558		Thumbnail		1 3/16"	3/8"	1/4"	$18.50
#858		Thumbnail		2 1/2"	3/4"	1/2"	$35.00
#579		Molding Plane		1 1/8"	1 3/4"	1/4"	$31.95
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TALKING BACK

We welcome comments, criticisms, suggestions, and even compliments. Send your correspondence to: Talking Back, Better Homes and Gardens® *WOOD*® magazine, 1912 Grand Ave., Des Moines, IA 50309-3379.

Dear WOOD *readers,*

WOOD magazine's IDEA SHOP

Thanks for your tremendous response to our IDEA SHOP™ featured in the September 1992 issue. In fact, we received so many letters, we felt obligated to devote this entire Talking Back section to our readers' reactions to the shop. Let us know if you have any other questions.

Print this article

Larry Clayton

Larry Clayton
Editor WOOD *magazine*

"Attaboy" on IDEA SHOP

Your September 1992 issue featuring your IDEA SHOP™ is a smash hit! The whole issue is absolutely great. It has everything. Thank you from a charter subscriber with a heartfelt "attaboy" to the entire *WOOD* shop team!

—Michael Mogilevsky, Titusville, Fla.

Drop cord a safety hazard

On *page 62* [of issue 54], you show a drop cord on the floor and my heart skipped a beat. I recently tripped on a drop cord in my shop and fell and broke my hip. I'm still recovering. Please tell your readers not to leave cords on the floor.

—Walter Adkins, Vienna, Ga.

We try very hard to keep all floors clear of such dangerous obstacles as drop cords, Walter. The cord you see is an air hose which sits on the garage-side floor beside the IDEA SHOP. This remains a low-traffic area. But returning to your original point, you're right. Cords do need to be out of harms way. Thanks for your strong safety reminder.

Continued on page 10

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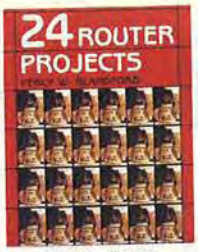

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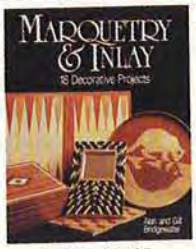

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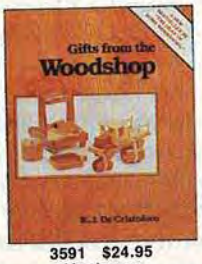

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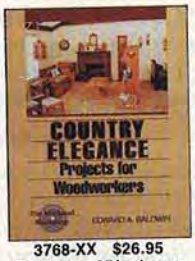

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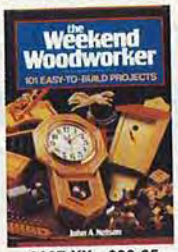

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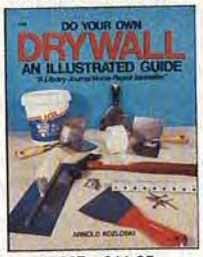

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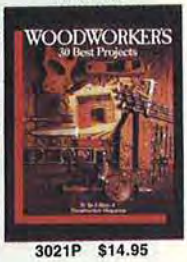

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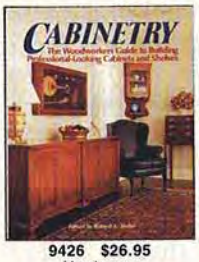

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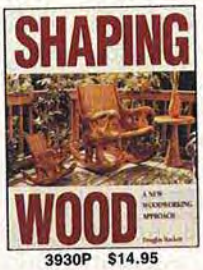

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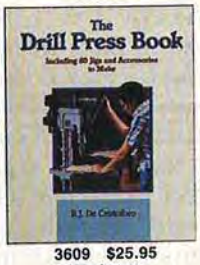

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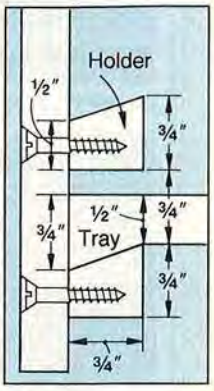
TALKING BACK

WOOD magazine's IDEA SHOP

Removable trays offer another way

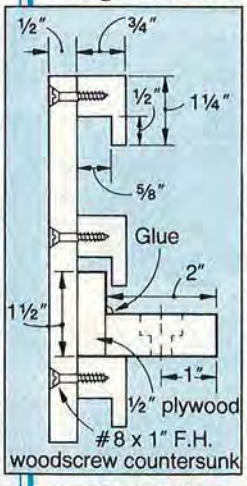


As a subscriber for more than a year, let me tell you how happy I was to see the feature on the IDEA SHOP™. I liked your universal wall cabinets, but I'd like to make them removable. Here's my suggestion: Bevel only the top side of the holder and widen the space between holders. Then make a half dovetail on each tray, so that it simply rests on top of the beveled holder. That way you can lift out each tray without disassembling the cabinet.

—Steven Sudlow, Aberdeen, S.D.

Thanks, Steve, for the good idea. See how we deal with this problem in the italicized comment below. Readers, we illustrated Steve's idea above right.

Another vote for removable trays



Congratulations on the work *WOOD®* has demonstrated in the IDEA SHOP. I studied the article for several hours. I have one suggestion—make those cabinets with removable trays. Here's my idea. (*See left.*)

—Ivan James, Jacksonville, Ill.

Thanks, Ivan. It's obvious we didn't explain our wall-cabinet system as thoroughly as we needed to. But we did, in fact, design it to let you quickly add and remove trays or holders as needed. By simply removing a few screws inside the cabinet, you can conveniently lift off the carcase from the tray panel which is securely mounted to the wall. For quick tray removal, for those times when you want the entire tray at a different workstation, we concur with Ivan and Steve—removable trays are handy. Also, consider using our design and adding metal clips to the tray so it can pop in and out of the beveled holder.

But is it BIG enough?

I realize you wanted to use space efficiently, but I feel the IDEA SHOP is really too small. I am currently working in a shop that is 16x22′ with an additional finishing/assembly room that is 10x12′. On numerous occasions I have run out of room while assembling large projects like bookshelves. I am just concerned that one of your readers out there might go out to build his/her dream shop only to find out that 14x28′ is just too small.

—Neil Hoffman, Winona, Minn.

Add TV and VCR to IDEA SHOP

Your IDEA SHOP™ is beautiful. Anyone would be more than pleased to have one like it. I have one suggestion though: Add a television and a VCR. Here's why: I have several jigs and machines that come with instructional videos. I like to view the tape in my shop so I can stop it and perform the task on the spot. Just thought you might agree.

—Paul Feinerer, Miami, Fla.

Interesting suggestion, Paul. We actually considered including in the shop one of the new small TVs that have a built-in VCR. But we saw it as a potential safety hazard. We feared that someone might have an accident trying to cut wood while viewing a tape. Eyes should be on work at hand. We chose instead to have a radio in the shop.

A usable IDEA SHOP

What a great shop you have. I really enjoyed your story about it and all the tool information. It really helps. Most stories in other magazines deal only with people who spend a lot of bucks on tools and shops. I can live with yours and use your ideas.

—Fred Smith, Alton, Ill.

Add design/office area to shop

In looking over your IDEA SHOP, I see an omission that became a high priority in my own shop—an office area where I can plan and design. To the left of my entry door, I built a wall-mounted 22x32" desk with a sloped top to accommodate my drawing board. I hinged the sloped area to give access to a storage compartment for graph paper, pens, and such. Overhead are three shelves. I also added a clip-on light to this corner. Every shop needs an area like this. Just thought you'd like to hear about mine.

—Bill Hamilton, Saylorsburg, Pa.

You're right, Bill, every shop does need a planning area, including the IDEA SHOP. As of right now, our project planning area is the on-wall workbench with its countertop; handy drawers for plans, paper, and pencils; and nearby wall cabinet filled with measuring and marking tools. In a future issue, we intend to feature a planning-station project that could go in any woodworker's shop.

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Do you have a great shop tip (or two) you'd like to share with other *WOOD*® magazine readers? For each published submission, you will get at least $40 from *WOOD* magazine (as much as $200 if we devote a page or more of space elsewhere in the magazine to your idea). You also may earn a woodworking tool for submitting the Top Shop Tip for the issue.

We try not to use shop tips that have appeared in other magazines, so please send yours to only one. *We do not return shop tips.* Mail your tip(s), address, and daytime phone number to:

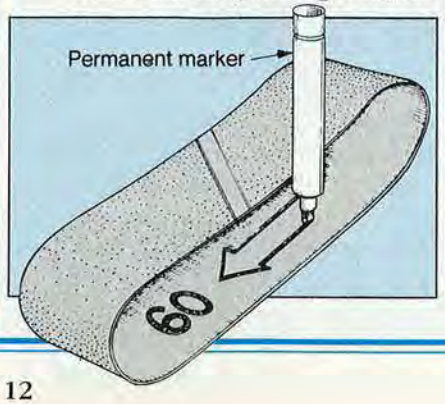
Top Shop Tip
WOOD magazine
1912 Grand Ave.
Des Moines, IA 50309-3379

Mark your sanding belts for future reference

A sanding belt's directional and grit markings usually wear off long before the belt's abrasive does. This poses problems when you switch belts.

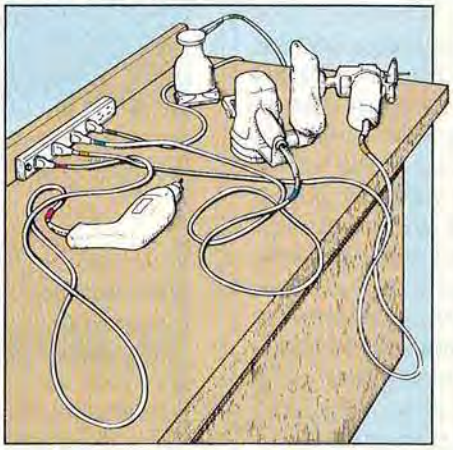
TIP: Before you install a new belt, add your own markings on the inside with a permanent marker—a red one works great. Draw bold directional arrows and write the grit size in large numbers. The red remains readable for a long time. You'll likely use up the belt before the markings disappear.

—Sam Chandler, Milledgeville, Ga.



Color-coded cords end disconnection confusion

You want to unplug your drill, which is plugged into a power strip along with three other tools. So far, you've unplugged two cords without hitting the right one. It's sure hard to trace those tangled cords.



TIP: With a stripe of paint or colored plastic tape around the tool end of the cord and a corresponding stripe at the plug end, you'll spot the right plug in an instant. Mark each tool (and your extension cords, too) with a different color or combination of colors. The color code also makes it easier to pick the right plug from a jumble when you want to connect a tool.

—Gail Traynor, Riverside, Calif.

For her winning tip, Gail receives a Skil model 1875 router with variable speed control, *right.*

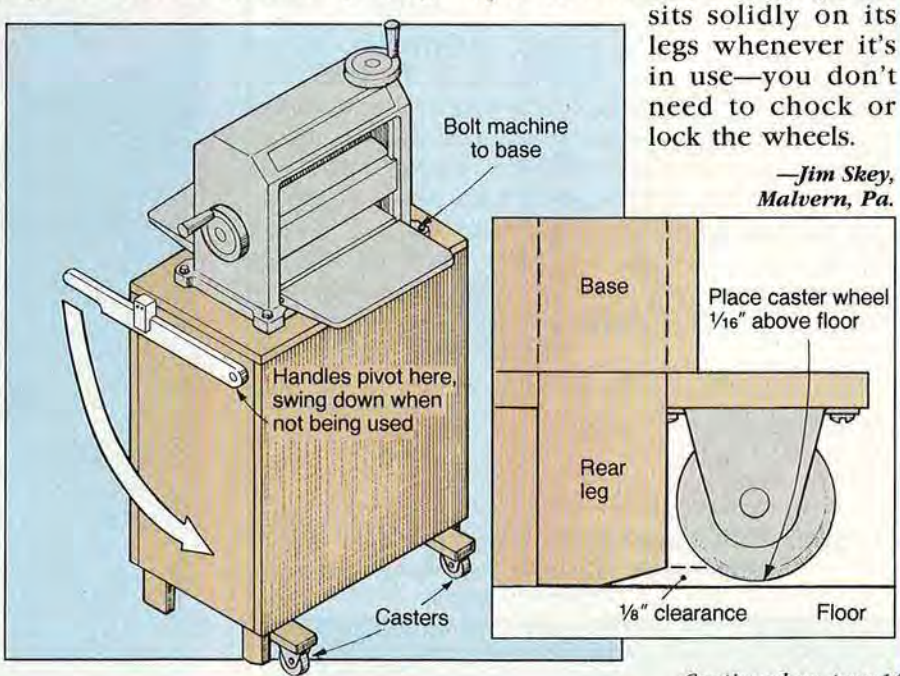
Make your tools into wheelbarrows

Putting your tools on wheels allows you to get the most out of your shop space. But, putting all of that equipment on mobile bases would cost a fortune.

TIP: Mount a pair of 2"-diameter rigid-plate casters behind the rear legs of the tool or stand, placing the wheels about 1/16" above floor level. Then, install a wheelbarrow-style handle on each side of the tool. (Removable handles or the swing-up style shown in the illustration work best.)

Now, just lift the handles to move your tools wheelbarrow style. As a bonus, the equipment sits solidly on its legs whenever it's in use—you don't need to chock or lock the wheels.

—Jim Skey, Malvern, Pa.



Continued on page 14

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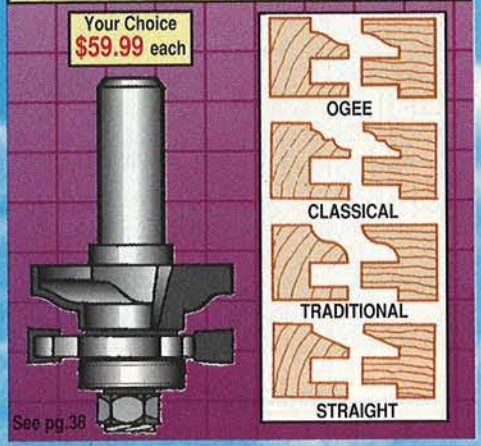

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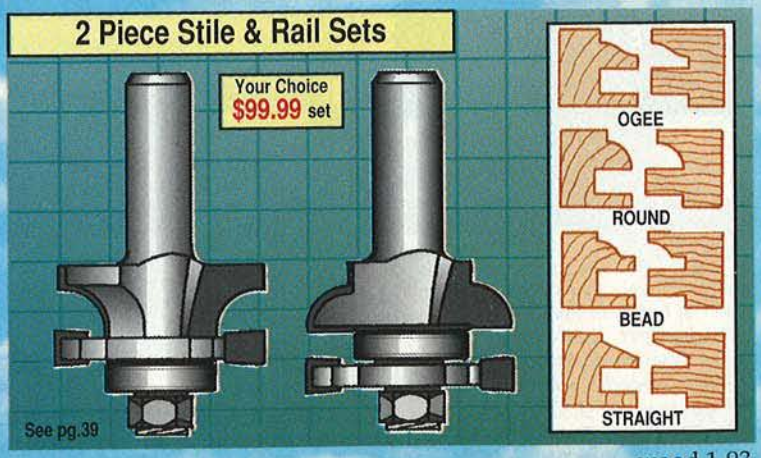

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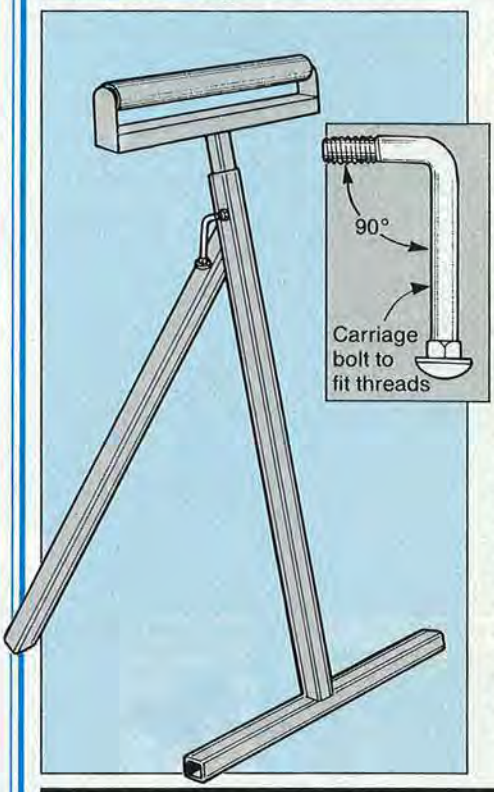
TIPS FROM YOUR SHOP (AND OURS)

Continued from page 12

Bent bolt replaces knob for easier adjustments



You'd feel more comfortable if you could tighten an adjustment a little more, but you can't grip the knob well enough to screw it down any tighter. You need something with a bit more leverage.

TIP: If a knob with a threaded shaft provides setscrew-type clamping, you can easily replace the knob with a lever to make tightening a cinch. Buy a bolt of the same diameter and thread as the threaded part of the adjustment knob and about 6" long (or use threaded rod). Clamp it in your vise (be careful not to damage the threads), and bend a right angle in the bolt, leaving a straight, threaded end at least as long as the threaded portion of the original knob. With the bent bolt screwed into the threaded hole, you'll have the leverage you need to secure that adjustment.

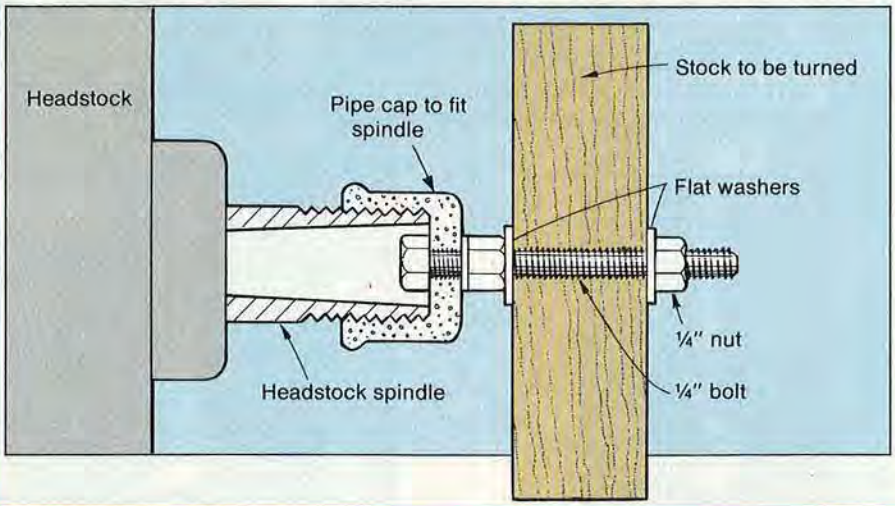
—Stan Schwartz, Bothell, Wash.

Pipe-cap lathe arbor holds wheels for turning

You've cut some wheel blanks with a holesaw for a toy project, but you'd like to turn grooves around them to look like tire treads. How can you mount those discs on your lathe?

TIP: If an iron pipe cap will thread onto your lathe spindle, you can make a simple arbor to hold the discs. With the cap on the spindle and the lathe running, file the closed end of the cap flat. Then, drill a hole the same size as the disc center hole (¼" in our example) through the center of the cap. Insert a bolt of appropriate length and diameter from inside the cap, and fasten it with a nut. Then, slide a flat washer, the wheel blank, and another washer onto the bolt, securing them with a nut.

—Bob Thompson, Harrisburg, Penn.



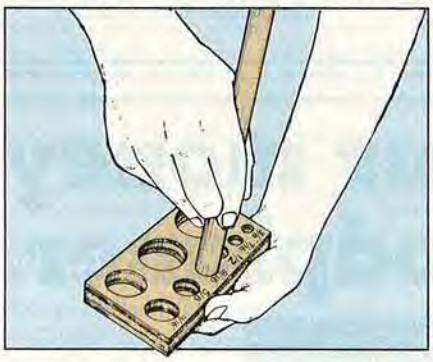
Take dowel gauge shopping to head off workshop woes

You've just bought half a dozen ½" dowels. Problem is, a couple of them are too big to fit your ½" holes, and one would be more at home in a 7/16" hole.

TIP: Since dowel sizes aren't precise, it pays to check them out before you buy. How? Just take a dowel gauge when you go shopping for those round rods.

Make a simple gauge from a piece of scrap plywood. Drill and label a hole for each size dowel you ordinarily use, along with holes 1/16" larger and smaller than those sizes. The gauge will help you select dowels to fit holes you've already drilled. It also will help you select a bit to drill holes to fit dowels you have on hand.

–Alex Chalmers, Myrtle Beach, S.C.



MORE TIPS FROM OUR WOODWORKING PROS

- Cut thin strips of wood consistently to the same thickness using the method described on *page 39*. We used this procedure to cut the multitude of strips for the woven hamper.
- Also in the woven hamper article, turn to *page 42* to see how we made combination leather and wood hinges. Then, give them a try on a few of your own project designs.
- Even if you have a router-fence system, see our handy router-table pushblock and featherboards on *page 46*.

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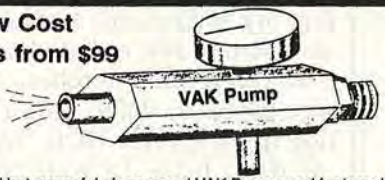

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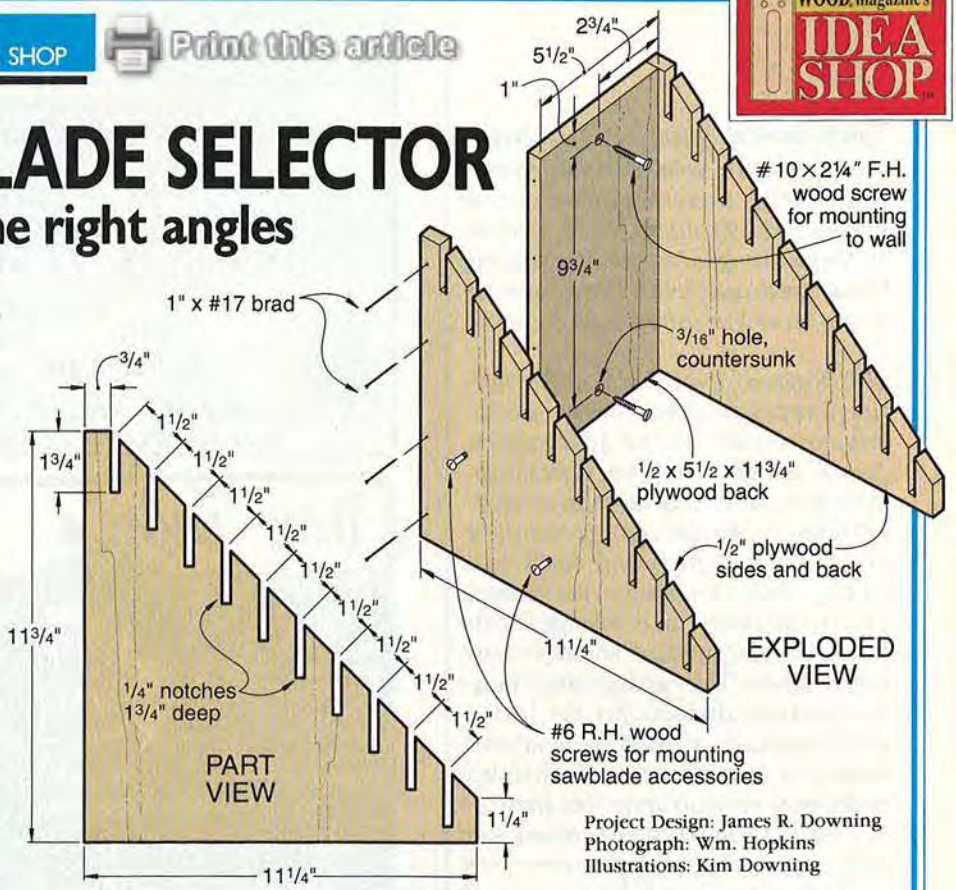

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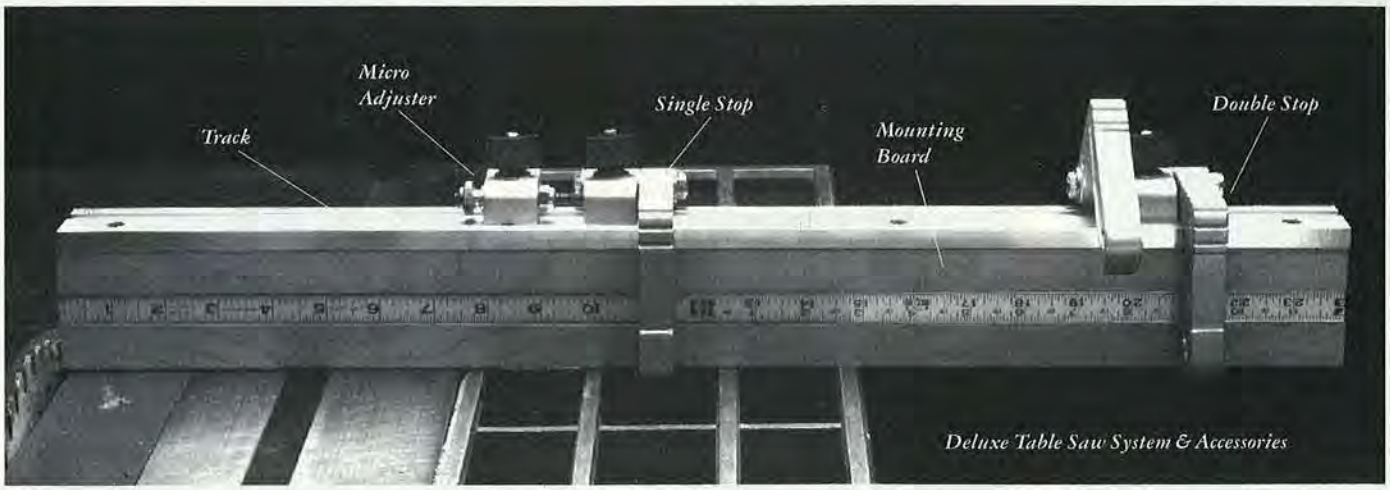

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FastTrack For Table Saws

The Basic Table Saw System includes a 24″ Track, and a Single Stop. You make a mounting board to attach the track to the face of your mitre guide. The Deluxe System includes the above and adds a 24″ Mounting Board, with a fully adjustable, right-to-left reading 24″ Rule set into it.

67K04.01	Basic Table Saw System	$35.95
67K04.02	Deluxe Table Saw System	$71.00

FastTrack For Radial Arm Saws & Chop Boxes

This system, comprised of a 48″ Track and Single Stop, makes a superb cut-off jig.

67K07.01	Radial/Chop Saw System	$46.35

The FastTrack Track

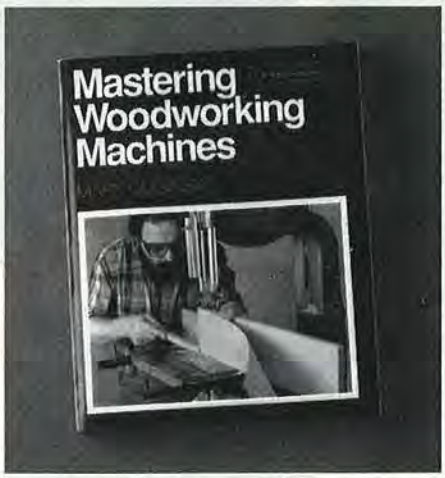
The foundation of the system is the Track, a ⅜″ thick by 1½″ wide precision extrusion with a "T" slot that fits the head of a ¼″ hex-head bolt. These bolts hold all of the accessories and fittings to the Track, which is attached to a mounting board. Any length of Track can be cut to fit, or butted end-to-end.

67K08.01	6″ Track	$ 7.75
67K08.02	12″ Track	$10.30
67K08.03	18″ Track	$13.15
67K08.04	24″ Track	$15.45
67K08.05	36″ Track	$20.60
67K08.06	48″ Track	$25.75

Single & Double Flip Stops

In the down position, the pivoting Flip Stop acts as a positioning guide, fixing the distance between the end of a board and the saw blade. It flips easily out of the way when not needed. The Double Stop provides two settings 2″ apart.

67K09.01	Single Stop	$20.60
67K09.02	Double Stop	$25.75



Other Accessories

The Micro Adjuster accessory screws into the side of a Single or Double Flip Stop or Microbase, allowing precise adjustment in .004″ increments. It is recommended for use with either Stop.

The Mitre Mount (includes a 12″ section of Track and a short piece of die board) lets you slide the Mounting Board freely left or right on the mitre guide. We recommend installing one with every FastTrack Table Saw setup.

The right-to-left reading 48″ Rule is marked in 1/16″. It fits into a dovetail-shaped flat extrusion which is set into a 14° dovetail dado you cut in your mounting board. The Deluxe Table Saw System already has the Rule set into it.

Suggested accessories for the Table Saw System are the Micro Adjuster, additional Track, Double and extra Single Stops, a 48″ Rule, and Mitre Mount. For the Radial Arm Saw, you can use a second 48″ Track, a Micro Adjuster, a Double or an additional Single Stop, and the 48″ Rule.

67K10.03	Micro Adjuster	$12.35
67K10.04	Mitre Mount	$19.30
67K10.05	48″ Rule	$19.25

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PRODUCTS THAT PERFORM

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A work-surface clamping system that's on the right track

Here's a simple clamping system that will help make your bench more useful than ever. It consists of two products: 1) The T Clamp, an arched piece of aluminum and accompanying hardware that acts as a holddown anywhere on your bench, and 2) The Tool Trak, a piece of aluminum channel in which the T Clamp slides along for variable positioning.

In addition to the arched holddown, the T Clamp comes with a 6"-long 3/8" bolt, clamping knob, two 3/8" T-nuts, two 3/8" flat washers, and two 3/8" nuts. With this hardware you can use the T Clamp anywhere you drill a hole into your workbench top. I also found the product useful as a holddown on my drill-press table.

Tool Trak comes in 12", 24", and 36" lengths, and includes a T-slide nut for the T Clamp. I routed grooves in my workbench for holding two sections of Tool Trak at a right angle as shown at *left*. This setup helps me secure most workpieces quickly and with little fuss or perspiration.

—Tested by Chuck Hedlund

T Clamp ($14.95), and Tool Trak ($14.95 for 12" length, $24.95 for 24", or $39.95 for 36") plus shipping from Alpha Pioneer, P.O. Box 560993, Orlando, FL 32856. Call 407/851-1990.

A pushstick with an added advantage

After nipping the tip of my thumb in a tablesaw accident, I went looking for reliable safety devices. I looked at several pushsticks but ended up buying a pair of Safe V Shoes. Two years later, I'm still happy with my purchase.

The product resembles other pushsticks, but has a V-shaped shoe. This feature allows you to hold a workpiece firmly against your saw's fence as you push it through the blade as shown at *right*. (Note the saw's guard was removed for clarity.) I often use a pair of these handy pushsticks with my router table and bandsaw.

Made from a durable, bright yellow plastic, the pushsticks last a long time (unless you saw into them), won't damage your cutting tools, and are easy to spot. Because of their low price, you should consider owning more than one pair so that you always have a set within easy reach.

—Tested by Bob McFarlin

Safe V Shoes, $6.95 ppd. for a pair from Exact Cuts Tool Co., 5306 Boy Scout Road, Florence, OR 97439. Call 503/997-2377.

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Titebond II is not designed for use below the waterline or continuous submersion.

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Work pants that save wear and tear on your knees

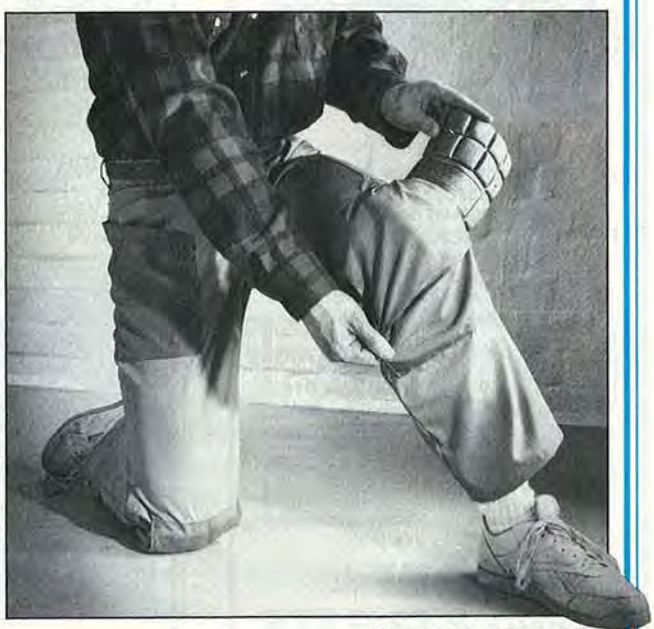
At some time or another, we all have to get down on our knees to complete a woodworking or remodeling project. In the past I've tried strap-on knee pads, but I found them inconvenient and uncomfortable to wear. So, I ordered a pair of Skillers work pants with built-in knee pads.

As you can see in the photo *right*, these pants have pockets that hold high-density, lightweight knee pads. The pads stay in place as you move about and kneel, but you can quickly and easily remove them before washing the pants. I recently gave the pants and pads a workout while painting the concrete floor of my basement shop. The pads were so comfortable that I almost forgot they were there, and they provided excellent cushioning to my knees as I painted.

The pant material is a blend of 65 percent polyester and 35 percent cotton that feels good and wears well. The knee pockets have a covering of Cordura nylon that showed little wear despite abrasive contact with my floor for several hours.

—Tested by Bill Krier

Skillers Work Pants, $35.50 plus $6 for a pair of knee pads. For sizing, shipping costs, and available colors, contact TNT Workwear, 411 Washington Ave. N., Minneapolis, MN 55401. Telephone 800/325-8707 or 612/338-2909. TNT Workwear carries a complete line of other work clothes and accessories.



Continued on page 22

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PRODUCTS THAT PERFORM

continued from page 21

Some mighty fine scrollsaw patterns

Ever since I visited Judy Gale Roberts at her studio in Lufkin, Texas, to do a story on her intarsia techniques, I have admired her work. (See the August 1991 issue of *WOOD®* magazine.) Then, when I heard that she turned her design talents to scrollsaw projects, I had to get my hands on her first book of patterns.

Design Book # 1, Judy's first effort in a series of "Fine Line Design" pattern books, met my high expectations. The publication contains 27 top-notch designs featuring mostly animals.

I found all of the patterns pleasing, but I wanted to know what an expert scrollsawer would say after cutting out one of the designs. So, I turned the book over to Rick Hutcheson, a seasoned scrollsawer whose work frequently appears in this magazine.

After cutting out the zebra project shown *above*, Rick commented: "Like most of the designs in the book, the zebra pattern involves a lot of intricate cuts. It took me much longer (1½ hours) to complete than any scrollsaw pattern I've worked on lately," he said. "I normally use a #5 blade, but I had to switch to a #4 to take on this project. I even made the blade start holes with a 1/32" drill bit, and I would say about 80 percent of the patterns require plain-end blades. I think advanced scrollsawers will find the patterns attractive and challenging."

—Tested by Bill Krier with Rick Hutcheson

Fine Line Design Scrollsaw Patterns by Judy Gale Roberts, $17.95 ppd. for Design Book #1. *Phone Roberts Studios at 409/632-9663 or write P.O. Box 1925, Lufkin, TX 75902, for information on subsequent titles.*

Sanding sticks help you smooth intricate areas

I recently added an inexpensive, pencil-size sanding accessory to my shop that yields big results. This innovative little tool, known as the Sanding Stick, consists of a plastic body that supports a small sanding belt. The stick has a tapered end that provides solid backing for the abrasive as you work the tool into tight spots as shown in the photo *below.*

In my tests the abrasive belt stayed in place thanks to a spring opposite the tapered end of the stick. When I needed fresh abrasive, I only had to slide the sanding belt by pushing on it with my thumb. By keeping several sticks in various widths and grits near my bench, I'm seldom at a loss whenever I need to smooth or shape tight areas.

—Tested by Bob McFarlin

The Sanding Stick, available in three sizes including ¼×6", ½×8", and ¾×10", costs $2.19, $2.59, and $3.29 respectively. Replacement belts from 40- to 600-grit cost $8.95, $12.40, and $15.95 per pack of 20. For more information contact Lumberton Industries, 6161 Bellevue, North Olmstead, OH 44070. Call 800/677-2153.

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37"x60"	17.46	25.23	26.12	27.45
37"x75"	20.07	29.79	30.90	32.56
50"x103"	33.71	51.73	53.79	56.88
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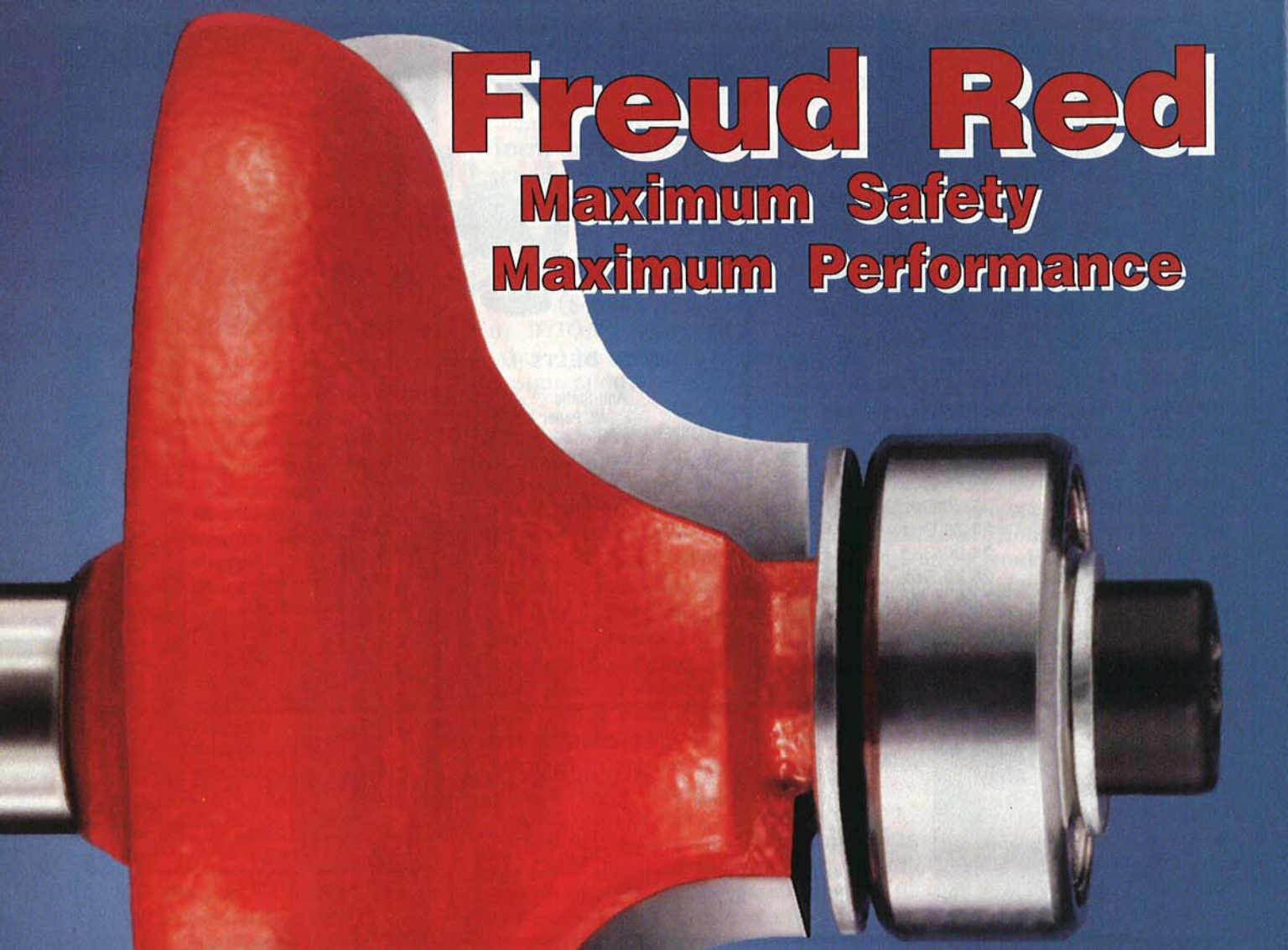

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BLACK WILLOW

Stock for caskets, cricket bats, and wooden legs!

In folklore, the willow represents mourning and lost love. Yet, the wood was said to bring luck at childbirth, and brew from its bark cured aches and pains. Along with hazel and birch, willow was accepted as a top divining wood. A willow fork, held correctly above the ground, would bend to indicate water below.

To ancient Greek and Roman craftsmen, willow was an easily worked utility wood. In England, the willow grew to star status, supplying the stock for cricket bats and polo balls.

Early settlers in the New World began the tradition of using willow for woven baskets, and may have even discovered its usefulness as a switch to tan young bottoms. In the Adirondacks and throughout the East, bark-on willow made popular furniture. And in the South, the wood became casket stock. But it was as artificial limbs that lightweight willow wood really performed, combining softness with superior shock absorbency.

Natural range

Wood identification

Botonists have identified more than 300 willow species around the world, with more than half of them growing in the eastern U.S. and Canada. All willows, however, have similar characteristics to Black willow (*Salix nigra*), the largest of all willows and the only one of suitable size for commercial lumber.

Because it prefers wet feet, black willow mainly grows in bottomlands along streams and lakes from the Rocky Mountains to the Atlantic Ocean. In the Mississippi Delta region, black willow appears in stands, where it reaches 100′ heights with a straight, clear trunk of 3–4′ in diameter. Open-grown willow usually attains a height of about 40′ and has a crooked trunk (or trunks) with many branches.

The bark of black willow appears dark brown to black, with fissures dividing thick ridges. Its slim branches, covered with narrow bladelike leaves up to 6″ long, form a graceful crown.

At 26 pounds per cubic foot air dry, willow weighs about the same as butternut. The fine-grained, even-textured wood of light-brown color with darker streaks along the grain could pass for yellow poplar. And although willow rates as relatively soft and not structurally strong, it won't readily splinter from a sudden blow.

Uses in woodworking

Even if you're not into crafting cricket bats, you may want to use willow for making toys, boxes, country projects for painting, and even utilitarian furniture. You can weave young willow shoots with the bark on (collected in cool months) into baskets or picture frames. Or, carry that further by bending green branches, also with the bark on, into chairs and settees.

Willow, like cottonwood, also carves well. Its texture adapts to turnings, too.

Availability

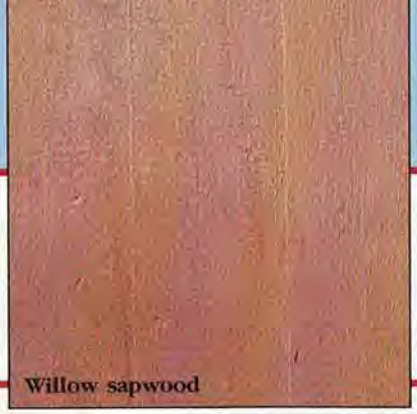
Hardwood suppliers serving commercial cabinetmakers often carry willow because it sometimes fills in for more costly cabinet woods for drawer sides or unexposed parts. In regions where the tree grows to large sizes, local mills also may offer willow. Expect to pay about $1.50 per board foot for the best grades. You normally won't find willow veneer at retail—it goes for architectural panels.

Continued

PERFORMANCE PROFILE

black willow

(Salix nigra)


Willow sapwood

Willow heartwood

Willow shares much with cottonwood, including its unfamiliarity among woodworkers. But as with most secondary species not associated with the cabinet class, willow has many uses at an economical price.

Best be warned, though, willow tends toward wooliness. That is, its fine wood fibers lift from the grain during machining and sanding operations, a feature that adds to finishing time. *But you can work this untouted wood, if you follow this advice:*

Machining methods

- Be sure your stock has been well-seasoned. Thick willow might have pockets of dampness, a condition caused by rushed processing. Feel the wood for cool spots that indicate moisture. Working willow with moisture pockets will result in warpage.
- Sharp cutting edges reduce the chance of fuzziness during planing and sawing. On the jointer, willow's tight, even grain poses no problems.
- Because willow won't easily splinter, it won't tear out when crosscutting. But in ripping, the tight grain requires a rip-set blade with 24 teeth or less.
- Use only use the very sharpest router bits on willow, and take several passes to make the cut. The wood won't burn, but dull bits make it fuzz all the more.
- Don't worry about the predrilling associated with other hardwoods. Because of willow's softness and resistance to splitting, both nails and screws drive without effort. And all glues work equally well.
- Reduce willow's fuzzing during sanding by applying a sealer coat of thinned-down finish after the first once-over with abrasive. Subsequent sandings will produce a satin finish.
- Willow heartwood often displays darker streaks, but don't hesitate to stain because of them. The streaks won't interfere with even coloration. In fact, the wood accepts both water-based and petroleum based stains equally well. And you can select from any of the available final finishes.

Carving comments

Carve willow for relief or in-the-round with knives, gouges, or power equipment, but keep these points in mind:

- Combat willow's tendency to fuzz with keen cutting edges.
- Because willow doesn't splinter, knives and gouges won't stray in its straight grain. But don't pursue the same intricate detail that basswood allows.
- Willow's lack of figure and normally less-than-interesting grain call for paint or stain.

Turning tricks

Keep turning tools sharp to fight fuzz, but otherwise, willow presents no problems. The wood can even occasionally display exceptional mottled figure that would look particularly interesting on large bowls.

SHOP-TESTED TECHNIQUES THAT ALWAYS WORK

Any exceptions—and special tips pertaining to this issue's featured wood species—appear under headings elsewhere on this page.

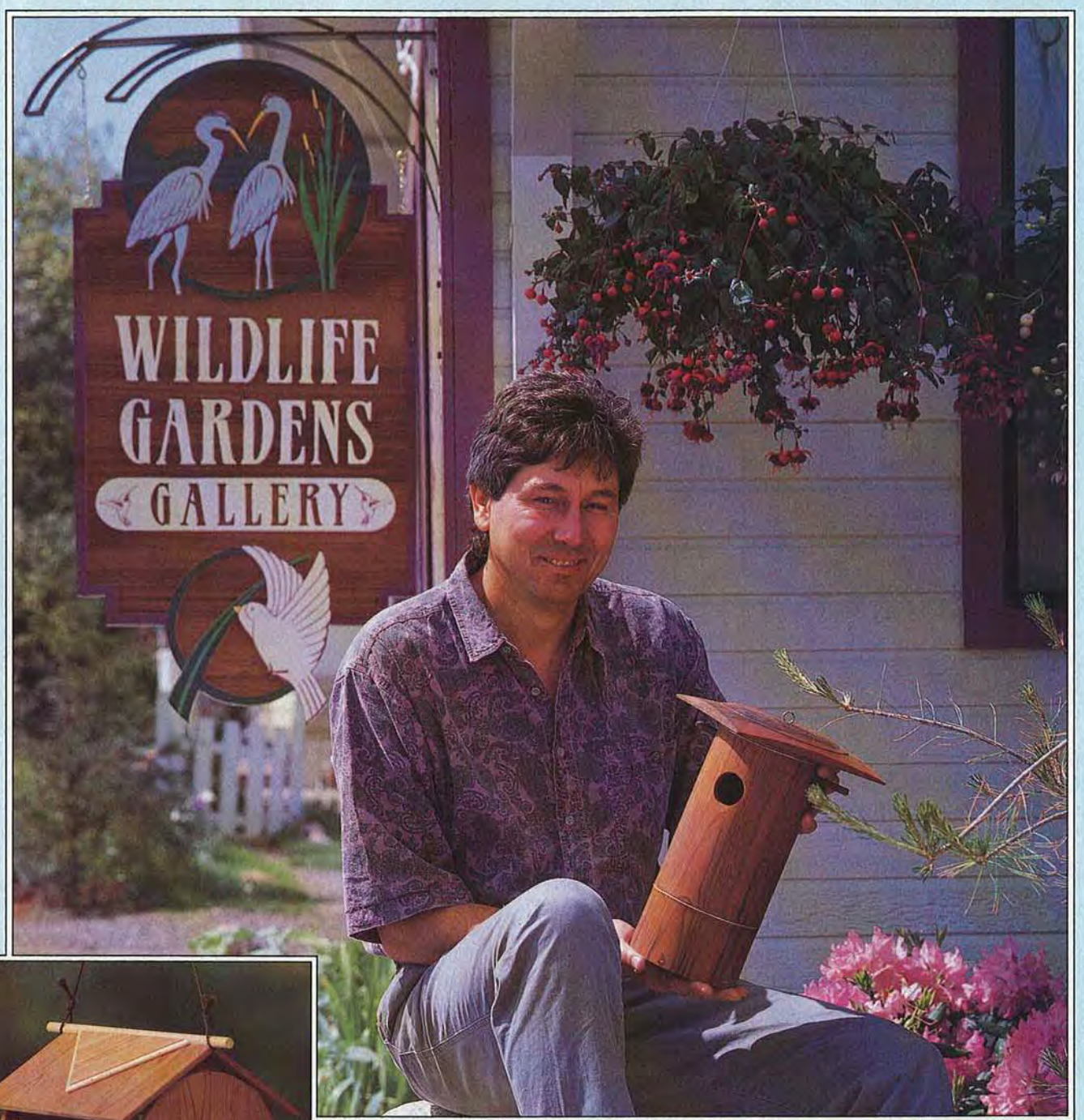
- For stability in use, always work wood with a maximum moisture content of 8 percent.
- Feed straight-grained wood into planer knives at a 90° angle. To avoid tearing, feed wood with figured or twisted grain at a slight angle (about 15°), and take shallow cuts of about 1/32".
- For clean cuts, rip with a rip-profile blade with 24–32 teeth. Smooth cross-cutting requires at least a 40-tooth blade.
- Avoid drilling with twist drills. They tend to wander and cause breakout. Use a backing board under the workpiece.
- Drill pilot holes for screws.
- Rout with sharp, preferably carbide-tipped, bits and take shallow passes to avoid burning.
- Carving softwoods generally means fairly steep bevels—greater than 20°—and deeper cuts.

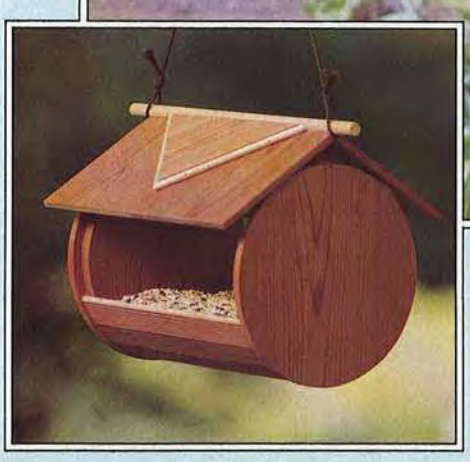
BLACK WILLOW AT A GLANCE

Look-Alike Yellow poplar

Photos: Hopkins Associates Illustration: Steve Schindler Compiled with woodworkers Jack Settle, Pam Dennis; carver Harley Refsal

MAKING A LIVING FROM WASTE WOOD





For over six years now, Oregon designer/craftsman Gary Schrodt has been working toward a better environment. The results of his efforts show up around the nation as birdhouses and feeders made from recycled redwood stock. In fact, he designed the bird feeder at *left* just for you. It makes a dandy Craft Shop project, as you'll see on *page 68*.

Continued

In Ashland, Oregon, Gary Schrodt and his wife, Rosalind, run a highly successful cottage industry fueled by an environmental theme. Their redwood birdhouses and feeders are different from the museum-quality woodturnings and sculptures Gary once made. But, their elegantly simple designs are popularly received, and through them, the Schrodts deliver an earth-friendly message.

"When it comes right down to it, most people are willing to talk environmental things, but few actually do anything," comments Gary, 46. "What I attempted to do from the very beginning was create a line of environmentally related products that attract wildlife, and use waste redwood to do it," he says of their six-year-old company, Schrodt Designs.

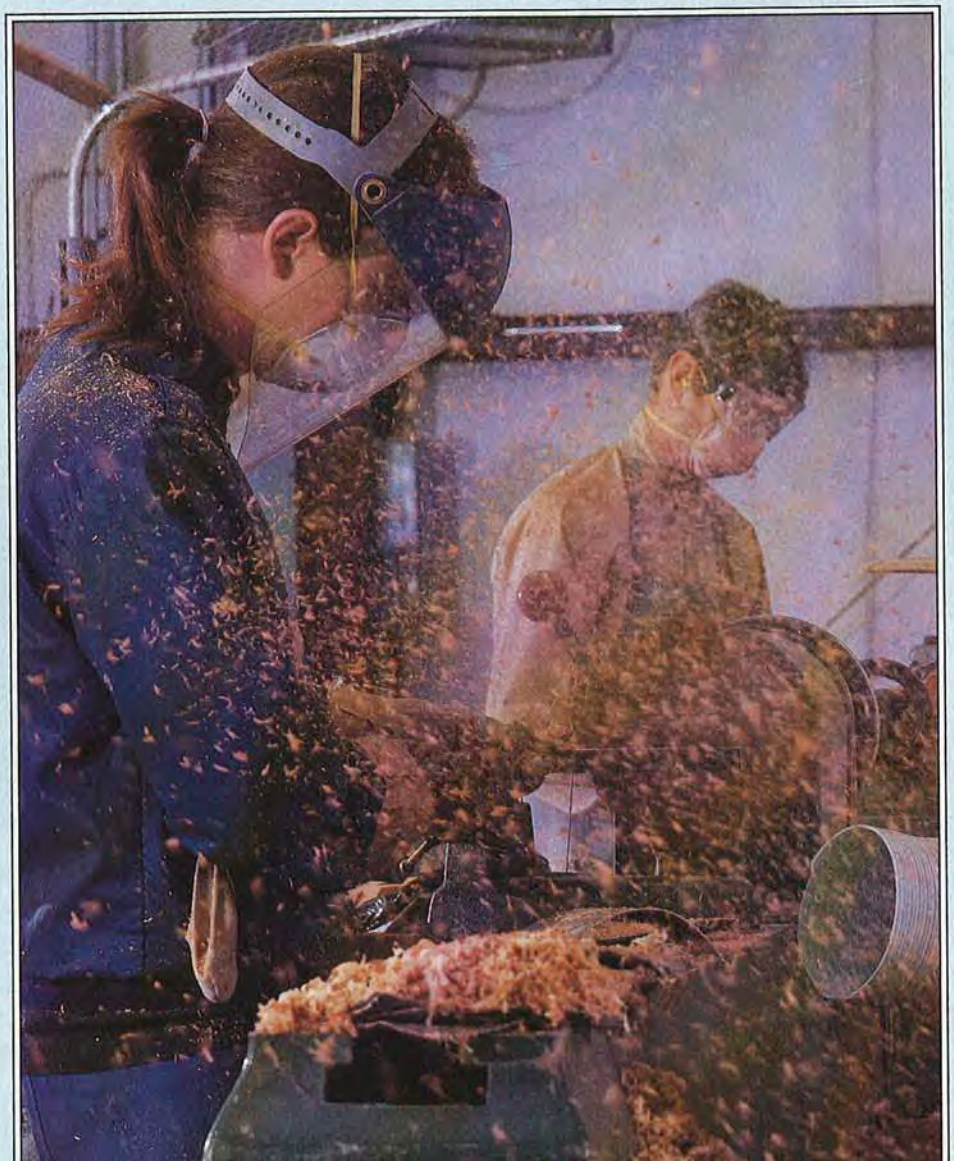
"All kinds of firms take big boards and cut them into little ones, creating a lot of waste," he continues. "But I start with waste material. And we build by hand as individual craftsmen, not with elaborate production systems."

To find out just how his products happen, we visited Gary and Rosalind at their shop. And we learned some valuable business lessons.

▲ *Above.* **Redwood waste, consisting of short lengths of 2×4s, 2×6s, 2×10s, and 4×4 as well as 6×6 stock, comes to Schrodt Designs stacked on pallets.**

▲ **The wren house above was developed to utilize the short redwood cutoffs from larger projects. Designed to Audubon standards, the bluebird house at right has a 1½"-diameter hole that keeps unwanted starlings out.**

▼ ***Below.*** **Steve Hammond, one of Schrodt Design's four lathe operators, can turn a redwood top in two minutes. Although the shop is set up for production, Gary has preserved a home-woodshop atmosphere.**



Print this article

Oregon's forests buzz with the sounds of logging. Vast clear-cut areas mark the harvest, creating a green and tan patchwork of the mountainsides. Looking up at them from the valley floor, Gary Schrodt shakes his head.

"The timber companies say there's enough old-growth fir to last 50 years or more, but I don't think there's that much," he says softly. "And in Northern California, they'll be all out of big, old-growth redwood in 10 years."

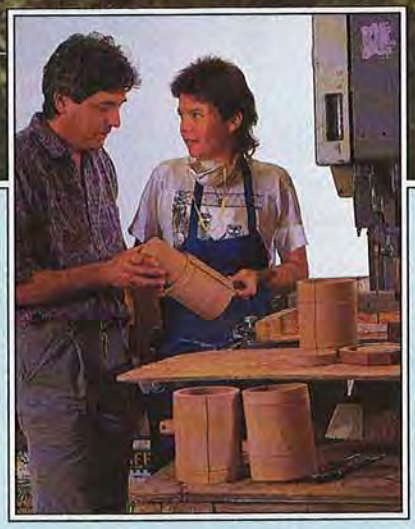
Gary's long-term commitment to environmental causes is clearly mirrored in his business. He reflects on the fact that much of the work done to preserve the environment requires obstructing activities that cause damage. "It is necessary and important to vigorously oppose such activities," Gary says, "but I also see the need for concerned people to commit to leadership in creating environmentally correct businesses that provide jobs with a conscience.

"The problem isn't a shortage of raw materials, but rather a shortage of creativity and conservation," he continues. "The forest products industry must strive to ship fewer raw logs out of the country and put more effort into producing finished products designed to obtain the highest yield with the least wood. By working waste wood to its maximum potential, we set out to create one example of what we feel is needed for the future."

The dunnage deal that launched a business

The redwood waste Gary puts to good use comes from Northern California mills. And he averages one semi-truck a month loaded with a dozen pallets of wood.

"You see, mills trim the redwood to get the best grade," Gary explains. "They cut out the knots, splits, and bark edge, but in 2′ increments. If I didn't buy those 2′-long 4×4s, 6×6s, 2×8s and all, they'd be ground up."



▲ **Coring and recoring a turned section of redwood 6×6 on the bandsaw results in four progressively smaller bird feeders that could actually nest inside one another. A center pivots allow them to twirl, thus discouraging bluejay visits. A linseed-oil finish on the feeders protects the wood from the elements.**

◀ **Gary stops to check on J.C. Crutsinger's bandsaw work. In the assembly process, thin brass bands and glue close the blade-entry/exit on each cylinder.**

"Believe it or not, the mills once burned everything under 8′ long!" he exclaims. "Around Eureka, there were 30 huge wigwam burners, and they were going full blast all the time. It was one of the most polluted places in the world." Yet, a deal Gary put together at one of those California mills launched his business and gave the waste wood renewed purpose.

As the story goes, the launch of Schrodt Designs really began when Gary made a forage into California in search of redwood mill ends. On the trip, he heard of an auction in Arcata. One of the big old-growth redwood mills had shut down rather than retool for smaller timber, and everything was for sale—the large headsaws, the building, all of it.

Continued

ANOTHER REDWOOD STORY

According to the California Redwood Association, there are now more redwood trees than when the species was first harvested. About 350,000 acres of redwoods are preserved in national, state, and local parks. Redwoods harvested for lumber come from private land, and the state of California strictly monitors every harvest with some of the strictest forest-practice laws in the nation.

Redwood is the fastest-growing conifer in North America, and it sprouts from both stumps and seeds. To supplement the species' natural regeneration, the redwood industry grows 4.5 million seedlings annually in nurseries.

Gary arrived at the mill and found an area the size of two football fields stacked with short cuts of redwood in all dimensions. In checking out the wood, he noted that the entire lot was usable. The auctioneer told him that the wood was simply listed as "dunnage."

When the dunnage came up for bid, Gary claimed it for $10,000. "But, I didn't have $10,000 to back up the check," he recalls with a laugh. "Looking around, though, I saw a mill owner that I knew from previous business and showed him through a few piles of what I'd bought. Seeing that he was impressed with the quality, I offered to sell him four-fifths of it for $10,000—provided, of course, that he load my share on pallets and deliver them to Oregon.

"Well, my fifth of the wood turned out to be 12 semis worth. It lasted us for two years!"

Waste not, want not—a theme to build by

Gary didn't one day say goodbye to woodturning and sculpting to jump into producing redwood

▶ **Developed to fill a gap in spring sales, the etched-glass hummingbird feeder, with its turned top and bottom of redwood, now leads in sales. Vijaya Moore, *below*, readies a batch for shipment. Tags offer instructions.**

▼ **Gary, who once did much of the hands-on work, now spends a lot of his time at his drafting table designing new products that can be made from waste wood. His wife, Rosalind, handles the marketing. Wally, the dog, has learned to just take it easy.**

HOW TO BRING BIRDS TO YOUR YARD

With Gary's easy-to-build feeder, shown in the Craft Shop on *page 68*, you can attract birds to within viewing range. To find out more about Gary's line of bird feeders and houses, and other yard accessories, write: *Schrodt Designs, 1287 Oak St., Ashland, OR 97520.*

items. He admits he worked through an evolution of ideas.

"Even when I was turning, I tried to design a unique bird feeder that I could make and market for a steady income," he says. "Eventually, I became inspired by the lines of a Japanese lantern."

Turning such a feeder completely on the lathe wasn't the answer, however. To avoid wasting wood and building time, Gary decided to turn the outside, then core the cylinder on the bandsaw.

Now, Gary gets the bodies of four bird feeders—1–4 quarts in capacity—from one foot-long piece of 6x6. Other products have similar origins.

"In working with waste, I dealt with knots all the time and created more waste by cutting them out," Gary says. "Then, it occured to me that I could build birdhouses with faulty wood by making the hole where the knot fell.

"Later, I wondered what to do with the short cutoffs from the 2'-long 6×6s," he adds. "That's where the short wren house and the thistle-seed feeder came from.

"Next, the glass-paned model evolved, because we found that people wanted to see the seed level. When we introduced that, sales went through the roof."

Even now, when it seems as if Gary has all the bases in his operation covered, he constantly works to retrieve wood from the waste bin. As he explains, "I always consider how to make better use of the materials." And it seems to be working. The scraps from production are too small for even firewood in local homes, so Gary sells them to a power plant for fuel.

Seconds—the feeders, houses, and other products with a small split, sap pocket, or other flaw—might end up as trash in some operations, but not at Schrodt Designs. Those still-functional pieces go to the Wildlife Gardens Gallery retail store that shares the shop's premises. "We're picky, so we have seconds," Gary says, "but they run less than one percent."

▶ This glass-paneled feeder shares the Japanese-lantern-style turned top with Gary's other designs. He designed it so the feed level could be seen. The ponderosa pine cone that decorates the bottom of each feeder also can be stuffed with suet or peanut butter.

A cottage industry that works

Gary and Rosalind proudly point out that their business is environmentally friendly above and beyond their treatment of waste redwood. Since the beginning, Schrodt Designs has incorporated several practical and community-conscious procedures into their day-to-day activities:

- The shredded paper that cradles products in shipment comes from local offices. It's collected door to door by Ashland High School's special-education students, who shred it by machine before delivery to Gary and Rosalind. Students each make as much as $100 per month for their efforts.
- Cardboard boxes go around again at Schrodt Designs. They're first retrieved from area grocery and retail stores, then used as outer shipping containers.
- Where possible, Gary relies on local subcontractors to supply components and materials.
- Rather than lay off employees during slow months, Gary designs new products to keep productivity on an even keel. After the fall and winter rush for feeders, summer orders decline. To keep things going, he developed a spun-copper birdbath with a redwood base that now generates 300 orders a month.

Gary also has plans to complete a wildlife demonstration area on an acre of land adjacent to the retail store. "We'll create the habitat and preserve the area as a wildlife garden, with all the right plants, feeders, and birdhouses," he explains. "Then people can come and see how it's done." The planet could use a few more caring, sensible people like Gary.

Written by Peter J. Stephano
Photographs: Laurie Black

The woodworker's survival
THE INCRA

Woodworkers we've spoken to seem split on their opinion of the Incra Jig: they either love it or don't know what to do with it. So, we decided to give this much-publicized jig and its accessories a tryout. Read on to find out what we learned, and then decide for yourself whether this tool deserves a spot in your shop.

Bill Krier
Products/Techniques Editor

HOW THE INCRA JIG WORKS

By attaching an Incra Jig to any fence, you give that fence the capability of being moved in precise increments of 1/32". This ability helps you produce perfectly spaced dovetail and finger joints when you use the jig on your router table. Or, you can use it on a router table or tablesaw outfitted with a molding head to make fluted moldings. By using the jig in conjunction with a drill-press fence, you can bore precisely spaced holes.

The Incra Jig gets its precision from two pairs of sawtoothed racks (see the blue pieces in the photo at *right*) whose teeth are spaced exactly 1/32" apart. The standard jig has a range of 8". (Two new "Pro" versions have ranges of 12" and 16".)

To precisely set the Incra Jig, you need only loosen a knob that holds the two racks of teeth together, and adjust the fence to the approximate necessary distance from the router bit, drill bit, molding head, or saw blade. When you tighten the two halves together the teeth will mesh at an exact increment of 1/32". Because of a built-in scale you don't need to use a tape measure.

The basic Incra Jig sells for about $30 and requires an attachable fence and right-angle fixture for joint-making with a router table. (The Pro versions sell for $80 to $90 and accept the same ac-

WHAT WE DISCOVERED IN OUR TESTS

Print this article

Early in our trials, we spoke with one distributor of the Incra Jig who described it as "a thinking-man's jig." We agree. To get your money's worth, you need to devote some time to carefully reading the jig's instruction book and practicing on scrap stock.

Once we got the hang of this jig, we found it unsurpassed for making evenly or unevely spaced box joints like those shown at *near right*. It was extremely handy for making cribbage boards with a drill press because it helps you precisely align the peg holes. If you make plenty of cribbage boards, you're better off with two Incra Jigs for precisely aligning holes in two directions.

For half-blind dovetails (the type that show on one side of the joint), we have mixed feelings about the Incra Jig. If you only want to cut evenly spaced dovetails, then choose one of the commercially available jigs made specifically for this purpose (about $50–$100 from several manufacturers, including Black & Decker, Porter-Cable, and Sears). These jigs help you achieve precise results in less time than required with the Incra Jig.

But, if you want to make unevenly spaced half-blind dovetails, such as those shown at *right, middle,* you're best off owning the Incra Jig. And, if you really want to build some fancy boxes, you can make joints such as those shown at *far right.*

For making these complex joints, we found the *Incra Jig Handbook and Templates* (about $20) a must. The package has 17 templates, a 100-page manual, and full-sized plans to guide you.

We do not recommend the Incra Jig for making through dovetails. For these joints, you'll want to own one of the more deluxe dovetail jigs on today's market such as the systems made by Keller, Leigh, or Porter-Cable Omnijig ($200 and up). Or, follow the bandsaw procedure shown on *pages 44-48* of the April, 1992 issue of *WOOD* magazine.

Do you really need the entire system?

We suggest that you get your feet wet with the original Incra Jig before buying any other accessories or moving up to the Pro versions. This way, you're only out $30 if you don't like the jig. Since all of the Incra products are compatible, you can upgrade or add accessories at any time without wasting your initial investment.

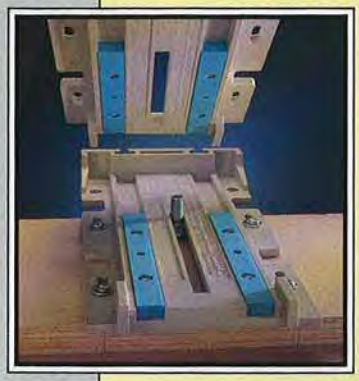
guide to understanding JIG

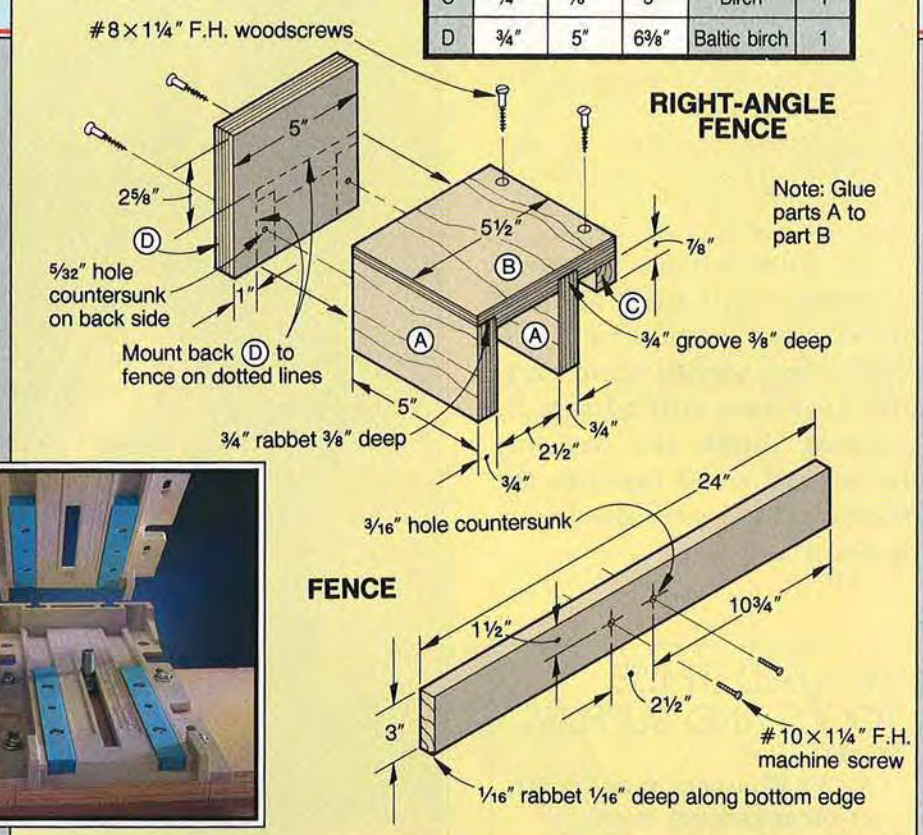
Bill of Materials					
Part	Finished Size			Material	Qty.
	T	W	L		
A	¾"	3⅜"	5"	Baltic birch	2
B	¾"	5½"	5"	Baltic birch	1
C	¾"	⅞"	5"	Birch	1
D	¾"	5"	6⅜"	Baltic birch	1

cessories.) The right-angle fixture slides along the fence and holds your workpiece at precisely 90° to the fence.

Taylor Design Group, manufacturer of the jig, offers a sturdy aluminum fence with a built-in incremental stop and extender stop rod (about $50) and an aluminum right-angle fixture (about $26). But, if you'd like to save some bucks, you can make your own fence and right-angle fixture out of plywood as shown at *left* and in the drawings *right*.

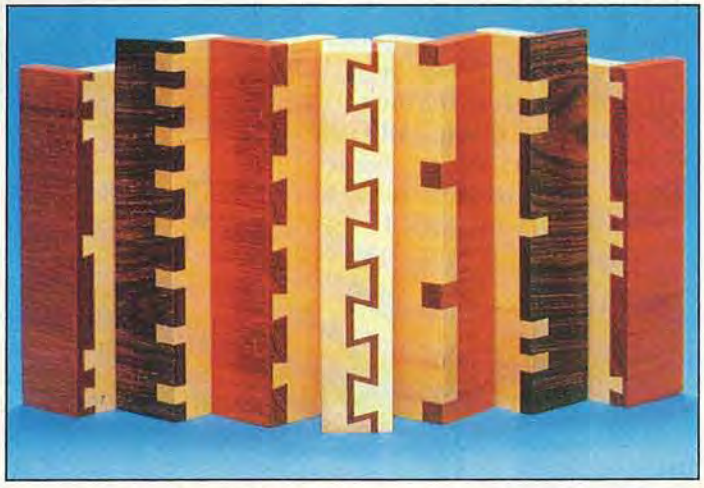
The Incra Jig has two halves, each with a pair of sawtooth racks. When meshed, these racks allow you to move a fence in precise 1/32" increments.





You can make tight box joints easily with the Incra Jig and your router table.

No other jig under $100 helps you make unevenly spaced, half-blind dovetails.

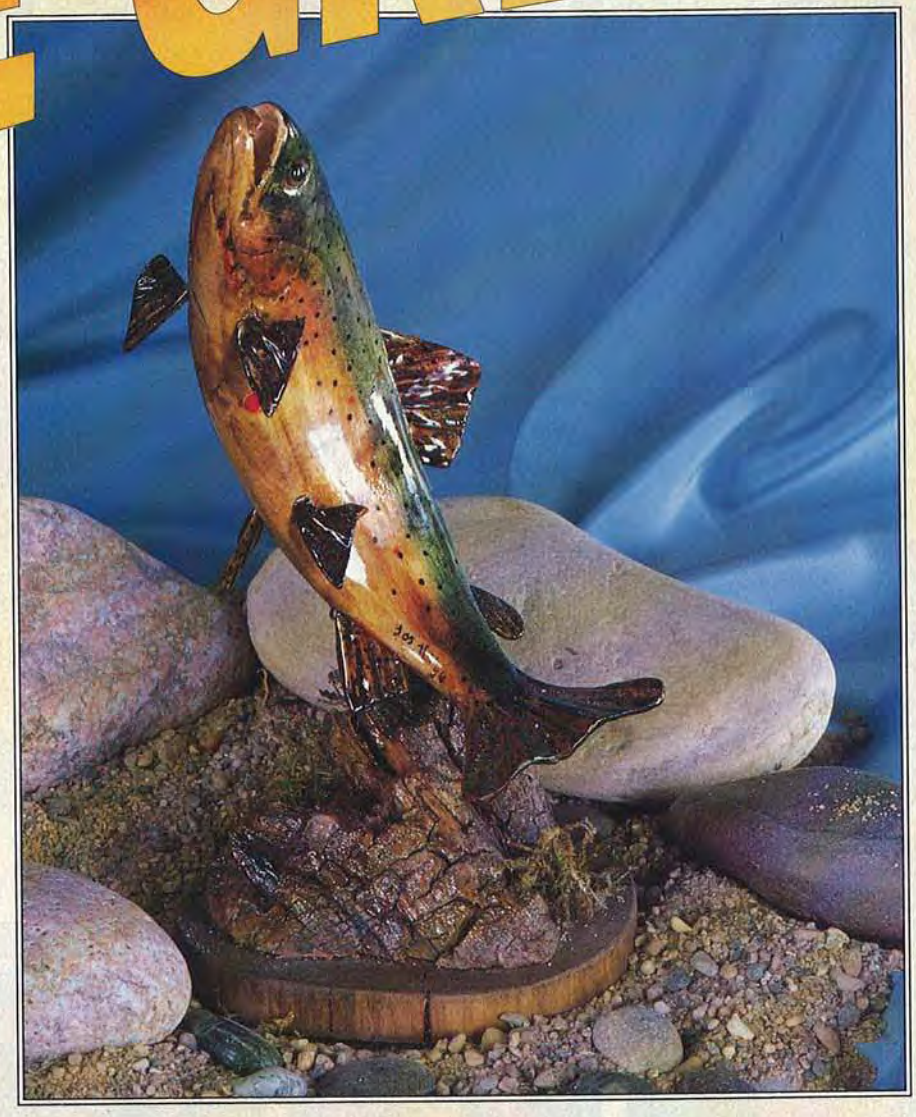


With the help of the *Incra Jig Handbook and Templates* (about $20), you can make fancy joints such as those shown *above*, as well as sliding dovetails.

For more information contact: Taylor Design Group, 3615 Courtdale, Dallas, TX 75234. Call 214/243-7943.

For information on a similar product, see *page 74.*

ONE GREAT



You won't have to spend any time fishing for compliments when you display this terrific trout carving. Everyone will admire its wet-look finish and the way the stained wood captures the beauty of the greenback cutthroat trout.

Print this article

WE USED THESE TOOLS AND SUPPLIES

Stock:

3×3×8" aspen, pine, cedar, or other carving wood.

Tools:

Bench knife
Belt sander
Disc sander
Handheld rotary tool or flexible-shaft machine
Mini sanding drums, 120-grit
Carving points or burrs (Sizes and shapes similar to those listed will work.)

- Ball: 1/16", 1/8" dia.
- Cylinder: 1/8" dia.
- Flame: 3/16" dia.
- Cone: 1/4" dia.

Finishing materials:

Stains or dyes
- green
- orange
- brown (med. walnut)
- black

Gloss polyurethane varnish

For Dr. Gill O. Sanders, heaven is a clear, cold mountain stream. The Salt Lake City, Utah, pediatrician, shown *right*, escapes to trout fishing whenever he can. When he can't, he carves trout.

Gill carved his first one a few years ago, based on a picture in his mind's eye. "It didn't take long for me to realize the importance of using a model," he admits. Now when Gill goes trout carving, he studies pictures as well as fish brought back in his creel (or even bought at the market).

Dr. Gill O. Sanders

Knowledge he's gained from years of angling brings another dimension to his carvings. Gill now produces a line of trout carvings as well as jewelry in bronze and sterling silver.

CATCH

THERE'S NO LIMIT WHEN YOU'RE CARVING TROUT

Carving the cutthroat

To carve Gill's greenback cutthroat trout, start with a 3×3×8" piece of any carving wood, or use aspen as Gill does. He likes aspen for its "unpredictable, beautiful grain" and workability. (See the Buying Guide on *page 37* for our source for aspen.)

Gill gathers branches from fallen aspen for his fish and chunks of driftwood for their bases (with permission) as he roams the banks of Idaho's Teton River, one of his favorite fishing haunts.

Trace the Full-Sized Top View pattern *below* onto one side of the stock, and then bandsaw the outline. Draw the Side View Pattern (red line) onto the inside curve of the piece, and saw it out. Cut the mouth opening with the bandsaw or a scrollsaw.

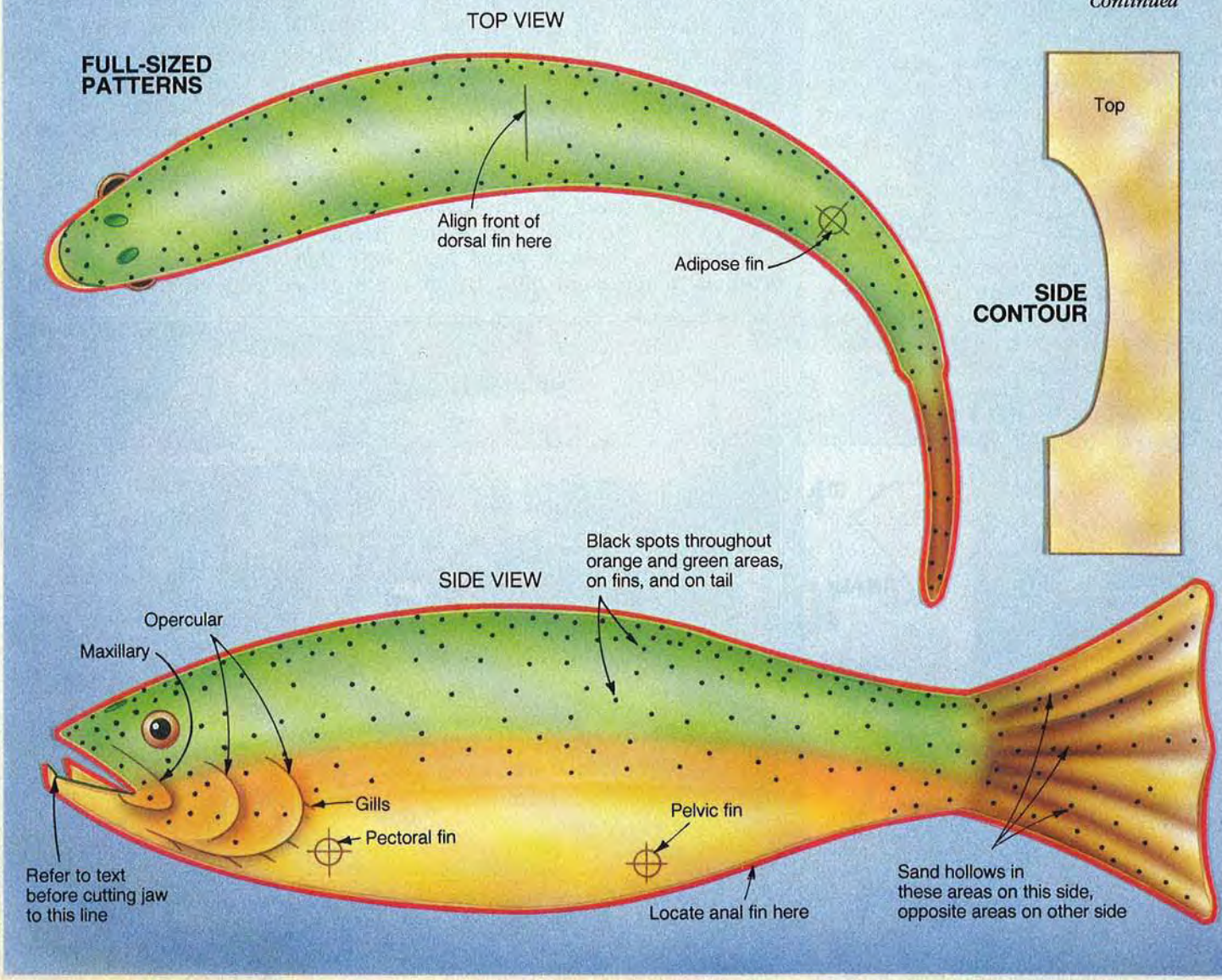
Sand yourself a fish

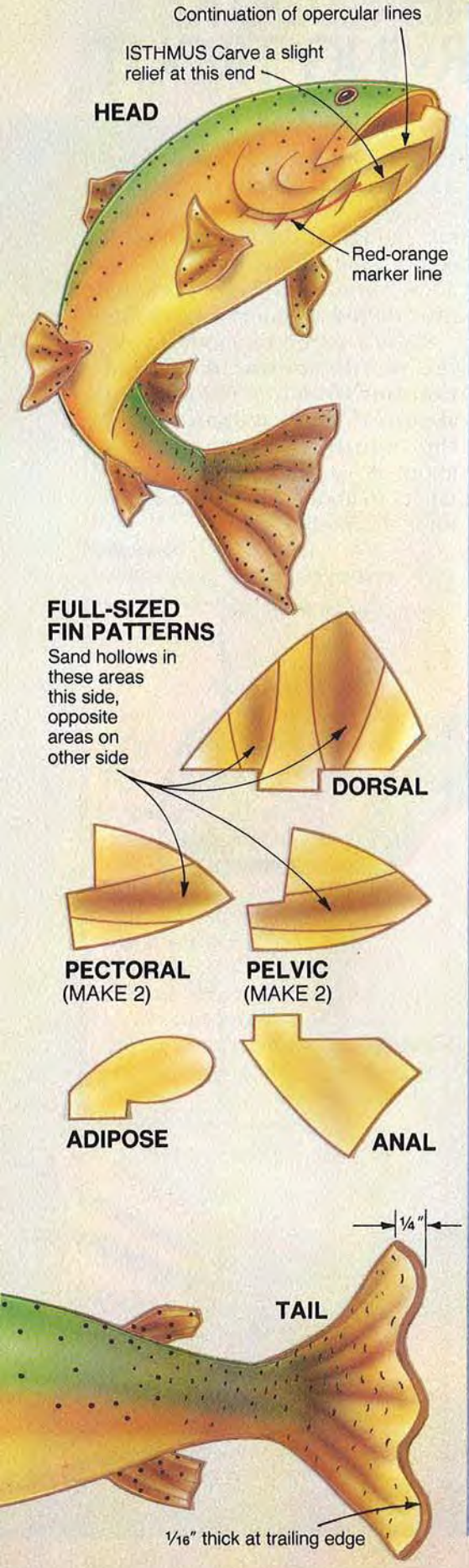
Shape the body on a stationary belt sander fitted with a 120-grit belt. The rounded end of the sander fits inside the curve while the flat belt takes care of the outside. (For less sanding, bandsaw the corners off the body first.)

"I used to do this project with saw, gouge, and knife, and still do so occasionally," Gill says. But, he adds, "sanding and power carving provide just as much enjoyment."

Slightly round the body sides to the profile shown by the Side Contour drawing *below*. From about ¾" thick at the corner of the mouth, the fish swells to about ⅞" at the middle, and then tapers to about 5/16" where the tail joins the body.

Continued





Fashion a fish head

After sanding the body to a smooth, continuous curve, detail the head. On each side, draw lines where shown for the opercular (the flap-like coverings over the gills), the maxillary (the upper jaw), and the gills. Mark the eye location on each side.

Carve the maxillary with the corner of a sanding drum or cylindrical cutter. The point of a tapered burr or stone or a flame-shaped burr or stone would work, too. (Which you use isn't particularly important. What is important is to pick one that's easy for you to use and that gives you predictable results.)

Cut toward the line from the back of the fish, forming a slight depression—1/32" or so will do—along the side of the head behind and below the line, as shown *below*. Don't undercut the edge.

Model the opercular as you did the maxillary. Here, though, it's okay to undercut the edge a bit. Sand a slight break on the sharp edge of the opercular, and then add narrow, shallow veins beneath it to represent gills. Detail the underside of the jaw as shown in the Head illustration, *top left*.

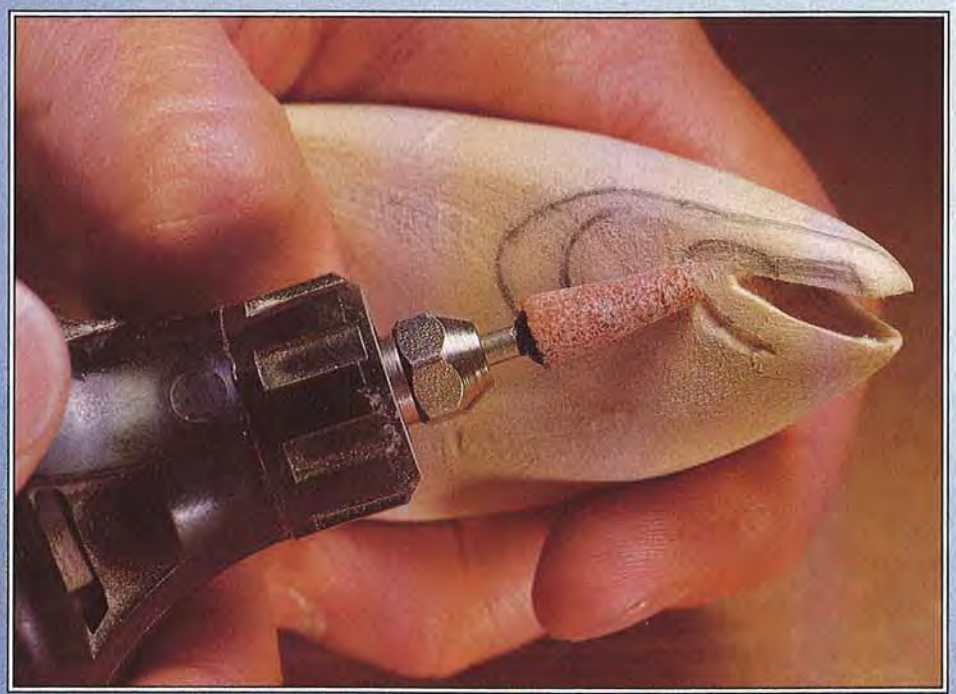
Double-check the eye location, and then cut a recess on each side for a 6mm-dia. koala-bear eye (available at craft stores). Fit the eyes, but don't glue them into place yet. Bore the nostrils where shown with a conical cutter.

Now, open wide

With a spherical burr, hollow out the upper inside of the mouth to about 1/8" deep. You'll achieve a more realistic look by leaving the inside surface a bit rough.

Next, carve the lower jaw and tongue. Cut around the inside of the lower jaw at the front and both sides with a spherical cutter, leaving a portion of the sawed surface as the top of the tongue. It should be about 1/4 the width of the mouth. Undercut the sides and front of the tongue with a spherical cutter, as shown on the *opposite page*.

Now, form the hooked lower jaw. Leaving the front at original height, cut the sides down to a line that starts about 3/32" below the sawed edge at the front and



When modeling the maxillary, carve a V-groove along the pattern line. Taper the area behind and below the line out to the side of the head.

meets up with it at the back (shown in *blue* on the pattern). A flame-shaped or tapered burr works well for cutting to the line.

Ruffle the fish's tail

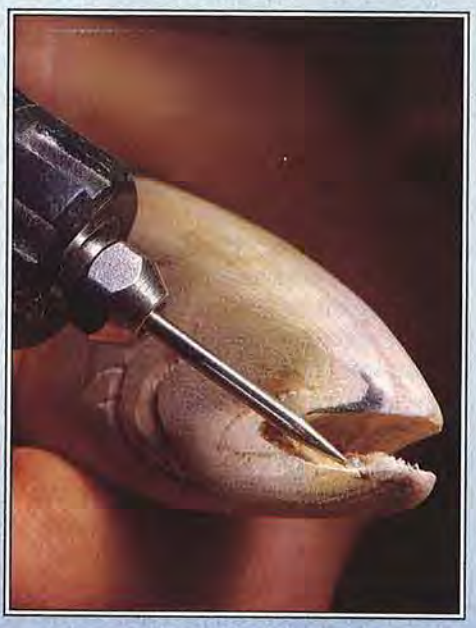
For the wavy caudal fin, or tail, first sand three shallow, tapered flutes into the side of the tail facing the inside of the body curve.

Then, on the other side of the tail, sand the two opposite flutes to form the wavy edge. Thin the trailing edge to 1/16", and sand the top and bottom edges, curling them. Carve a distinct division between the body and the tail, as shown in the Tail illustration.

Cut and sand seven fins

Now, make the seven fins—two pectoral, two pelvic, one dorsal, one anal, and one adipose. Trace the Full-Sized patterns for the dorsal, pectoral, and pelvic fins on the *opposite page* onto 1/4"-thick stock. Trace the adipose and anal fin patterns onto 1/8"-thick stock. Cut out the fins with a scrollsaw.

Form the wavy pectoral and pelvic fins with a small drum sander. Sand a shallow depression low on the front and high on the back of each. Curl the upper front edge slightly forward on the pectoral fin, slightly back on the pelvic. Remember to make mirror-image left and right side fins.



Carve a groove around the lower inside jaw with a small spherical cutter. Undercut the tongue on the front and sides so that it looks like it's flicking when you view the fish from the side.

The ripples in the dorsal fin run almost vertically, starting from the base of the fin. Hollow the surface where shown, and then relieve the opposite areas on the other side. Since the anal and adipose fins aren't rippled, just smooth and thin them.

Sand all fins to about 1/16" thick at the edge, rounding over all the edges (except the edge that joins the fish body). The fins can be slightly thicker in the center for strength, but don't let them look too heavy and clumsy.

Incise shallow lines on both sides of each fin, including the tail. Extend them from the fin's attachment to the body to the opposite edge. The corner of a sanding drum, a pointed burr, or a veining cutter will do the job.

Position each fin against the body where shown, and trace around the attaching tab for each. With a knife or rotary burr, carve a slot for each fin. Fit each to the body, but do not glue the fins into place yet. Finish-sand the completed fish and fins.

A fishy finishing job

Because the wood grain enhances the look of the fish, Gill prefers stains for finishing his trout. (We discovered that Rit all-purpose dyes work fine, and they're cheaper and easier to find than colored stains. We used Kelly Green no. 32, Peach no. 48, Cocoa Brown no. 20, and Black, mixing small amounts of the dye powder into hot water.

Start by staining the lower body brown except the inside of the mouth. Flood on the stain (or dye) with a small brush, keeping the surface wet. With the brown still wet, brush green onto the area indicated. Blend the colors for a natural-looking transition. Add orange where shown on the operculars, along each side, and onto the tail. Again, blend the colors; you want a subtle highlight, not a distinct orange streak.

Work green stain into the brown-stained fins, and then go over them with orange. Let color build up in the incised veins on the fins to add accents.

Make the spots on the body and fins with a black felt-tip marker. Blunt the point slightly to make a dot about 3/32" diameter. With a red-orange marker, add a few more spots, and then draw a stripe along the gills on each side, shown on the Head illustration.

Finally, a fish

Glue the fins and eyes into place. Fill any gaps at the fin attachments with a stainable filler, and stain to match. Then, drill a 1/4" hole into the side near the tail on the outside of the curve.

Glue a short length of dowel into the hole for mounting the trout to your base. Use whatever you like for a base.

Finish the trout with gloss polyurethane varnish. Gill applies 12–15 coats to give his trout the wet look. After about five coats, he carves one last detail. Using an X-Acto knife, he makes slight cuts on the inside of the upper and lower jaws, raising slivers of wood to represent teeth.

Buying Guide

Aspen wood. Aspen 4"-dia.×12", $12, or two for $20, ppd. One Good Turn, 3 Regal Street, Murray, Utah 84107. 801/266-1578.

Gill's catalog, video. Catalog of trout carvings and jewelry in wood, bronze, and sterling silver, and information about future availability of trout-carving video. Gill's, 1586 E. Tomahawk Dr., Salt Lake City, Utah 84103. No phone orders, please.

Written by Larry Johnston
Project Design: Gill O. Sanders, M.D.
Illustrations: Mike Henry
Photographs: John Hetherington; Wm. Hopkins

WOVEN-WOOD
GOOD-LOOKING STORAGE

When we ran Keith Raivo's handwoven whatnot basket in the October 1989 issue of WOOD® magazine, reader response proved overwhelming. Because Keith's hamper design impressed us just as much, we knew you'd enjoy making it as well. But you won't want to hide this beauty in the closet; it works too well as a decorative accessory.

Print this article

Note: See the Buying Guide at the end of the article for our source of 1" copper nails.

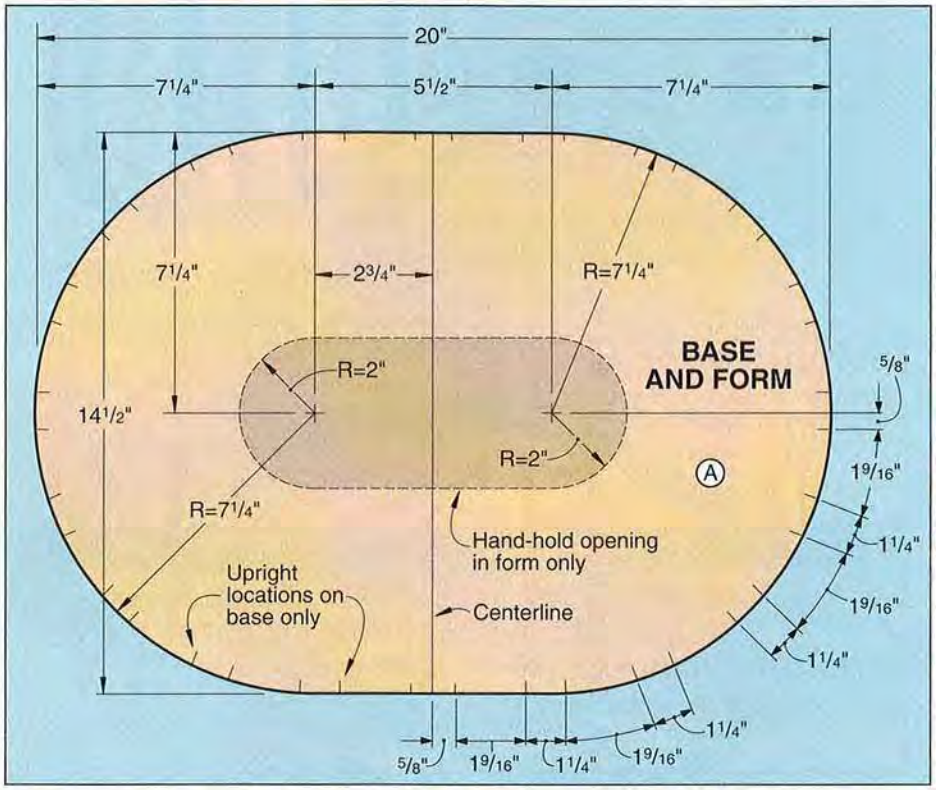
Mark and cut the base and the form pieces

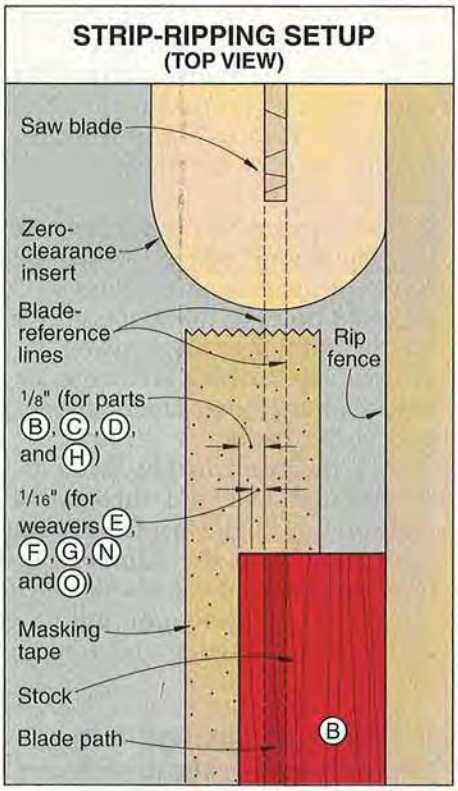
1 From ¾" AC exterior plywood, cut two pieces to 14½×21" for the base and form blanks (A).

2 With the edges and ends flush, adhere the two pieces of plywood with double-faced tape or a few beads of hot-melt adhesive. Using the dimensions on the Parts View drawing, mark the base outline on the top piece. Bandsaw the two pieces to shape, and sand their edges flush. Pry the pieces apart, and remove the double-faced tape or hot-melt adhesive.

3 On the piece you'll use for the base, lightly mark the upright positions with a pencil where shown on the Parts View drawing. On the other piece, which you'll use as the form, mark and cut the hand-hold opening.

HAMPER
FOR YOUR DIRTY DUDS





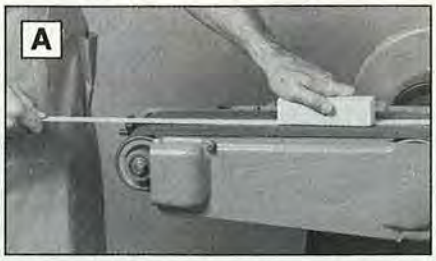
Now, cut and add the uprights to the base

***Note:** When ripping the 1/16" and 1/8"-thick strips, we recommend cutting several extra; it's easy to break them when weaving. Also, you can cut the thin strips using the method described below, or use our thin-strip jig from the September 1991 issue. Due to the possibility of kickback, we don't recommend cutting the strips between the blade and fence.*

1 Stick a piece of masking tape to the tablesaw top where shown on the Strip-Ripping Setup drawing. Position a straightedge against both sides of the saw blade, and mark blade-reference lines on the tape. Now, mark a line parallel to the outside reference line 1/16" away from the blade and another line 1/8" from the blade where shown on the drawing. (To prevent the thin strips from falling into the saw, we cut a piece of stock to the same shape and thickness as the tablesaw insert. With the wood insert taped firmly in place, we slowly raised the rotating blade through the stock to make a zero-clearance insert.)

2 From ¾" walnut and oak, rip five oak strips and five walnut strips to 1¼ × 25" for the uprights (B, C). Position the outside face (not edge) of one of the 25"-long walnut pieces flush with the 1/8" reference mark. Using a push stick, rip a 1/8 × 1¼ × 25" strip from the outside face of it. Measure the thickness of the strip and re-mark the reference line if the strip doesn't measure exactly 1/8" thick. Now, rip two 1/8" strips from each piece to obtain 10 walnut strips (B) and 10 oak strips (C).

3 As shown in photo A, sand both faces (not the edges) of each strip to remove the saw marks.



Using a block for uniform pressure, sand the faces of the uprights and weavers to remove saw and burn marks.

4 Drill a 3⁄32″ hole 1⁄4″ off center and 3⁄8″ from the bottom end of each upright where shown on the Bottom Band detail accompanying the Base and Uprights drawing. Using the previously marked location lines, position the uprights and nail them to the base in the configuration shown on the Base and Uprights drawing. Erase the pencil marks.

5 To make the bottom band (D), cut a piece of 3⁄4″ oak to 1 1⁄4 × 64″. Rip a 1⁄8 × 1 1⁄4 × 64″ strip from the outside face of the piece for the bottom band.

6 Drill a pair of 3⁄32″ pilot holes in the band end where shown *below*. Cut the end of the band with the pilot holes to the shape shown on the drawing. Now, using the Bottom Band detail for reference, belt-sand a 2″-long taper on each end of the band.

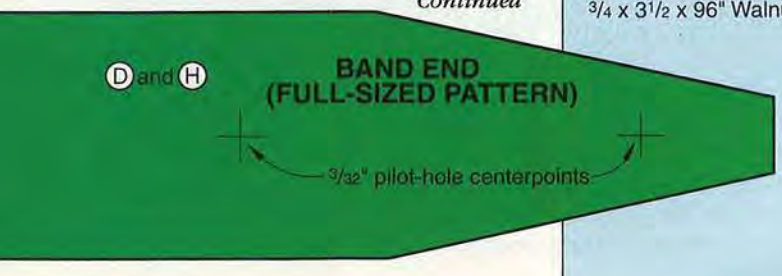
7 Soak the band in hot water for 20 minutes (we did this in the bathtub). Nail the band over the uprights and to the hamper bottom, centering the nails on each upright where shown on the Base and Upright drawing and Bottom Band detail.

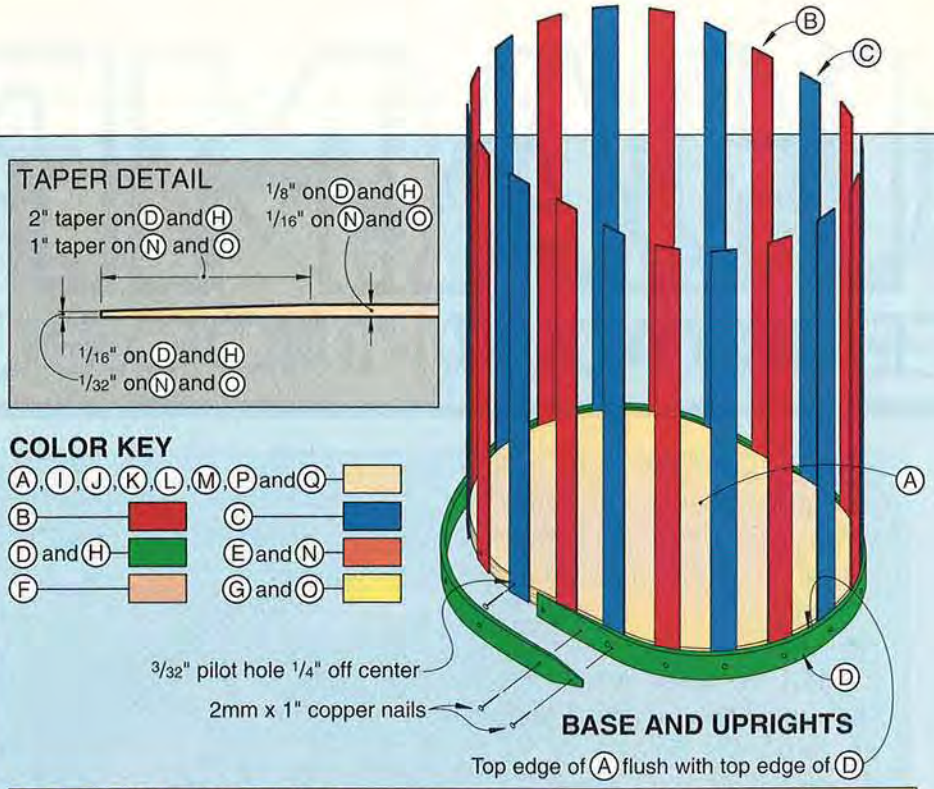
It's time to cut and add the oak and walnut weavers

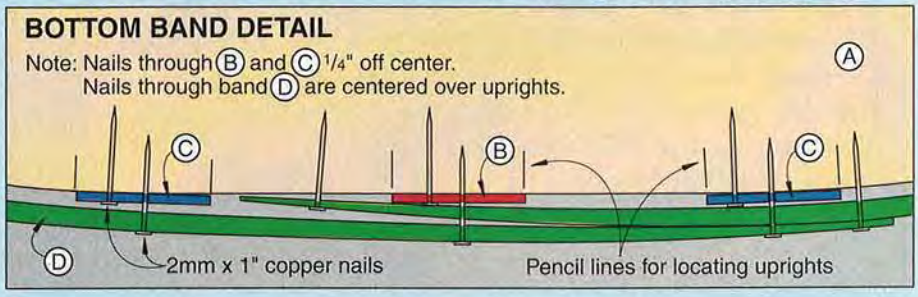
1 Plane one piece of walnut to 7⁄8″ thick. Now, rip and crosscut it to 2 × 63″ for parts E. Cut a piece of 3⁄8″ oak to 3x63″ for parts F, a piece of 7⁄8″ oak to 4 × 63″ for parts G, and a piece of 3⁄4″ oak to 1 1⁄4 × 64 for parts H.

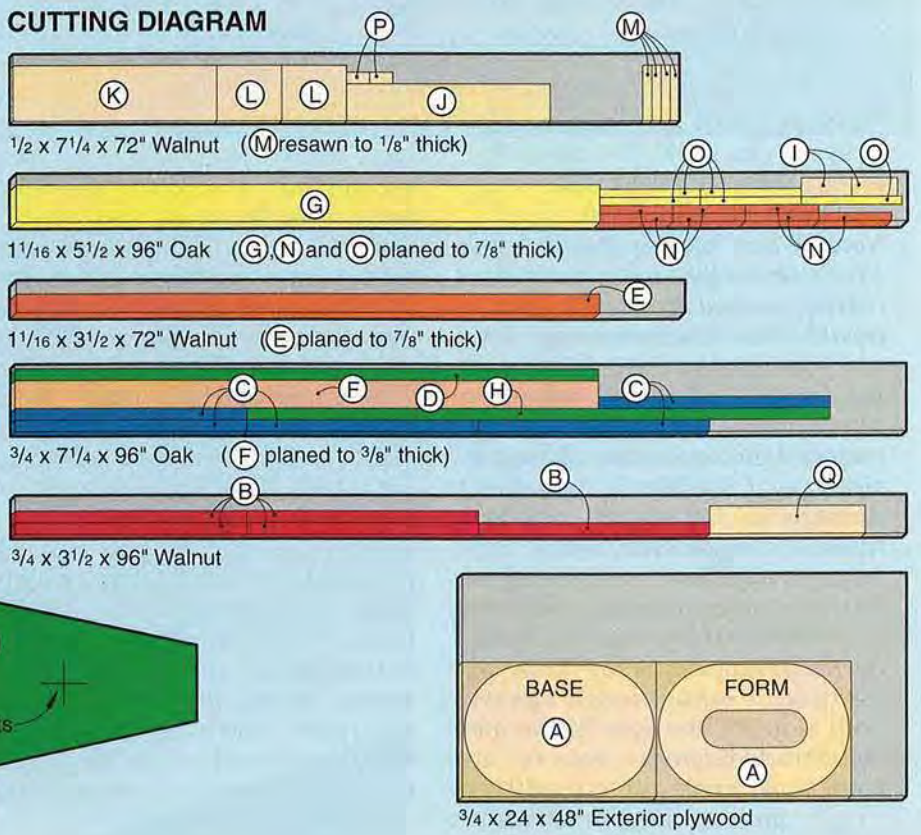
2 Using the method previously described and the 1⁄16″ reference mark on the masking tape, resaw the weavers (E, F, G) to size. Next, using the 1⁄8″ reference line, cut weaver parts H to size.

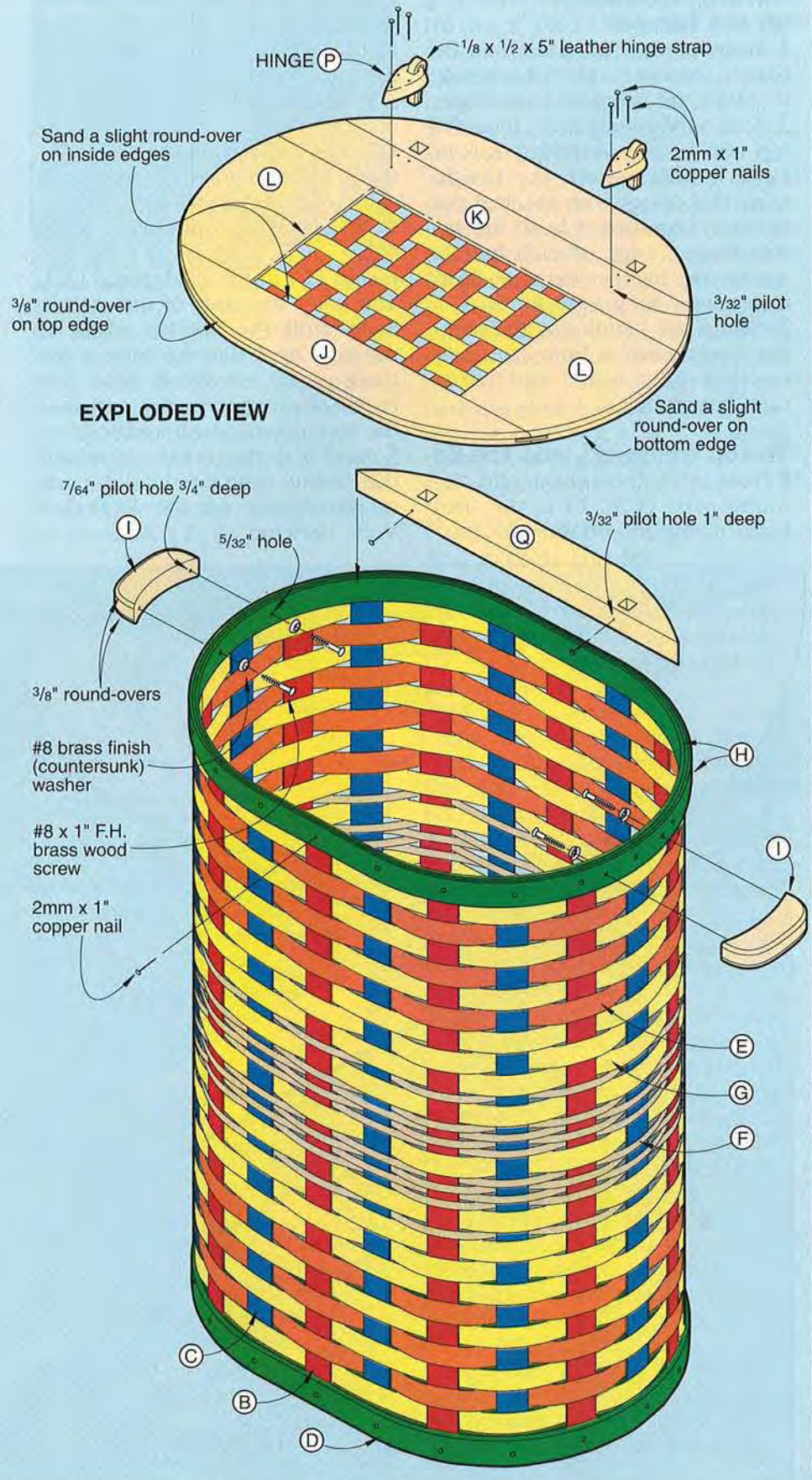
Continued

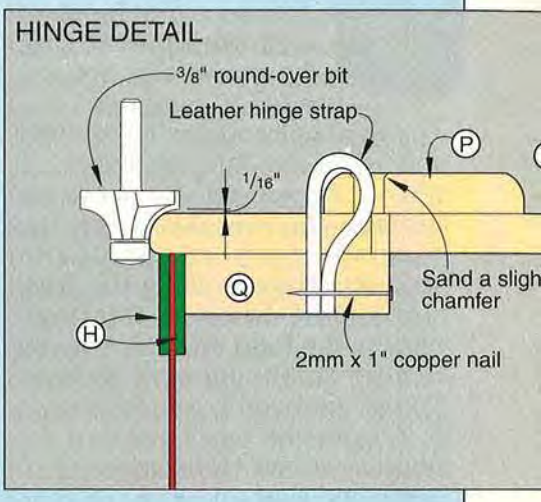












Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
HAMPER BOTTOM					
A* base & form	¾"	14½"	20"	EP	2
B* uprights	⅛"	1¼"	25"	W	10
C* uprights	⅛"	1¼"	25"	O	10
D* bottom band	⅛"	1¼"	64"	O	1
E* weaver	1/16"	⅞"	63"	W	6
F* weaver	1/16"	⅜"	63"	O	10
G* weaver	1/16"	⅞"	63"	O	15
H* weaver	⅛"	1¼"	64"	O	2
I handles	1 1/16"	1¾"	4¾"	O	2
LID					
J* front	½"	4"	22"	W	1
K* back	½"	6"	22"	W	1
L* sides	½"	6"	7"	W	2
M splines	⅛"	6"	1"	W	4
N weaver	1/16"	⅞"	7⅞"	O	7
O weaver	1/16"	⅞"	10⅞"	O	5
P hinges	½"	1¼"	2½"	W	2
Q* support	¾"	3"	16¾	W	1

*Initially cut parts marked with an * oversized. Then, trim each to finished size according to the how-to instructions.

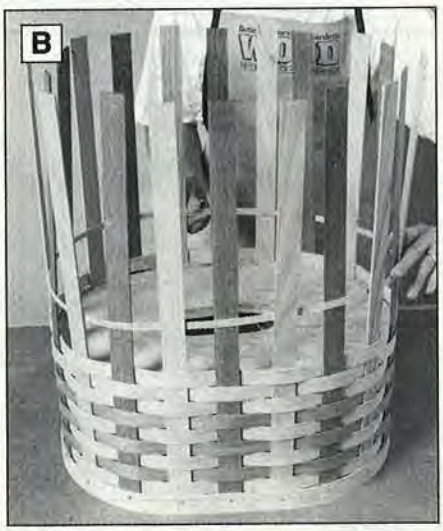
Material Key: EP-exterior plywood, W-walnut, O-oak.

Supplies: double-faced tape, ⅛ × ½ × 26" leather, #6 × ½" flathead brass wood screws, #6 brass finish (countersunk) washers, #8 × ½" flathead brass wood screws, #8 brass finish (countersunk) washers, finish.

3 Sand both faces of each weaver. Next, soak the weavers in hot water for 20 minutes.

4 Working from the bottom up and using the form as shown in photo B, weave the weavers through the uprights. Keep the overlapping portions of the weavers centered along the back side of the hamper. Continue moving the form upward, keeping it near the uppermost weaver. Weave until you reach the top.

5 Cut the end on one end of the outside weaver (H) to shape.



With the plywood form in place, weave the wet weavers around the oak and walnut uprights.

6 Clamp the inside and outside top weavers (H) in position. Drill 3/32" pilot holes. Drive the nails through the 3/32" holes, clip off the excess so only about 1/8" protrudes on the *inside* of the hamper. Now, using a helper to hold the hamper assembly horizontal, position one of the nailheads on a piece of heavy metal (we used the top of a metal vise). Working from the inside of the hamper and using a ball-peen hammer, rivet (flatten) the protruding end of the nail flat against the inside face of the top inside weaver (H). Repeat for each nail.

7 If the uprights protrude slightly above the top weavers (H), trim them flush.

Getting a handle on the hamper

1 Transfer the full-sized handle pattern twice to 1 1/16"-thick oak. Bandsaw the handles (I) to shape.

2 Rout a 3/8" round-over along the top and bottom *outside* edges of each handle. Leave the inside edge that mates with the hamper exterior unrouted. Check the inside curved edge of each handle against the hamper exterior. Sand if necessary for a tight fit.

3 Clamp the handles to the hamper directly across from each other. Drill pilot holes, and fasten each handle to the hamper.

To top things off, add the lid

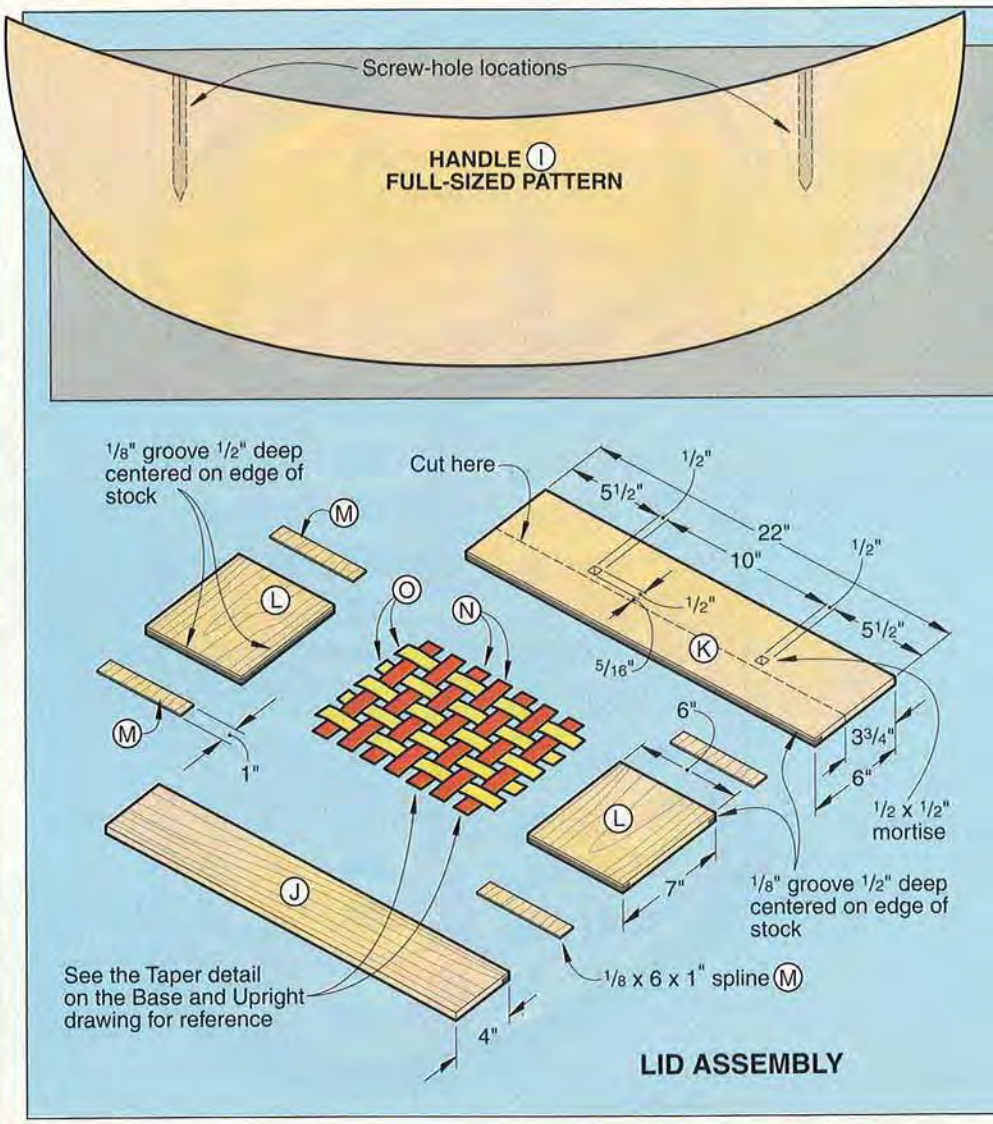
1 From 1/2" walnut, cut the lid surround parts (J, K, L) to the sizes listed in the Bill of Materials.

2 Using your tablesaw, cut 1/8" grooves 1/2" deep along the edges of the lid parts where shown on the Lid Assembly drawing.

3 Paying close attention to the direction of grain indicated on the Lid Assembly drawing, cut 1/8"-thick splines (M) to the sizes shown on the drawing.

4 As shown in photo C, glue, spline, and clamp the two lid side pieces (L) to the back piece (K). You want the ends of the splines flush with the *outside* edges of the lid. Check that the ends of the back piece are flush with the edges of the side pieces and that the surfaces are flush and level.

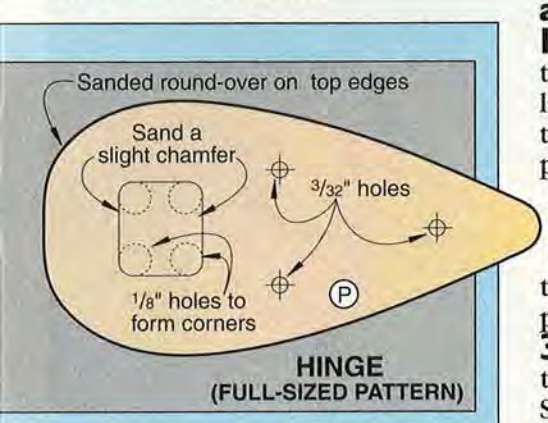
5 Sand a slight round-over along the inside edge of the lid parts where shown on the Exploded View drawing.

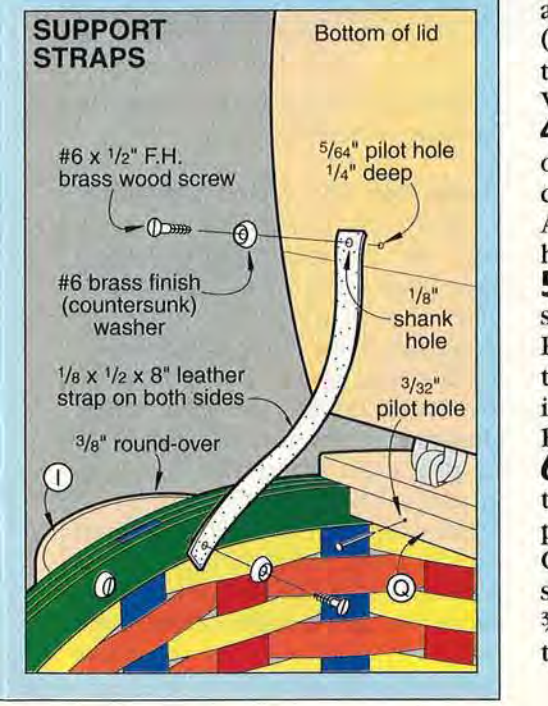


Glue, spline, and clamp the lid together in two steps to help ensure a flat lid.

6 Cut the lid weavers (N, O) to size. Sand a taper on both ends of each. Soak the pieces, and weave them in place where shown on the Lid Assembly drawing.

7 With the lid weavers in place, glue, spline, and clamp the lid front (J) to the previously formed lid assembly (K, L).





8 To form the hinge joint, cut the lid back (K) into two pieces where shown on the Lid Assembly drawing. Tape the two pieces back together edge to edge.

9 Turn the hamper upside down, and carefully center it on the lid assembly. Set the point of a compass 3/8" from the lead, and mark a line 3/8" from the outside edge of the hamper onto the lid bottom.

10 Bandsaw the taped-together lid to shape, and sand the cut edges smooth. Rout a 3/8" round-over along the top outside edge of the lid (see the Hinge Detail accompanying the Exploded View drawing for reference.) Sand a slight round-over along the bottom outside edge. Remove the tape.

Now, shape the hinges, and attach the lid

1 Using the full-sized hinge pattern on the Parts View drawing, lay out two hinges (P) including the openings and nail-hole centerpoints onto 1/2" walnut.

2 Using a scrollsaw or coping saw, cut the hinges to shape. Drill a blade-start hole, and cut the openings to shape. Drill three pilot holes in each hinge.

3 Sand a 1/8" round-over on the top outside edge of each hinge. Sand a slight chamfer on the front and back edges of each opening. (For reference, see the Hinge detail accompanying the Exploded View drawing.)

4 Mark the hinge-hole locations on the lid back (K) 5/16" from the cut edge where shown on the Lid Assembly drawing. Cut the hinge holes in the lid back to shape.

5 Cut the lid support (Q) to the size listed in the Bill of Materials. Place the lid support on the top of the hamper, and trace the hamper interior shape onto the piece. Bandsaw the piece to shape.

6 Clamp the lid support (Q) to the inside back edge of the hamper with the top edges flush. Clamp the lid back (K) to the support so the lid back protrudes 3/8" beyond the outside edge of the hamper. Trace the hinge-hole locations from the lid back onto the lid support. Remove the pieces, and form the hinge holes in the support where marked.

7 With the hinge holes aligned, glue and clamp the support and lid back to the hamper.

8 To pin the leather hinge strip to the support later, drill a 3/32" hole through the front edge of the support (Q) and into the hinge hole.

9 From 1/8"-thick leather, cut two strips 1/2" wide by 5" long for the hinge straps. Push one end of the strap though the hole in the hinge. Stick both ends through the hole in the lid back (K). Repeat with the other hinge. (We bought our leather at Tandy–you also could get it at a shoe-repair store.) Drive a 1" copper nail through the previously drilled holes in the lid support to fasten the hinge strap to the support.

10 Align the lid on the hamper, and glue and nail the hinges to the lid.

11 Using the Support Strap drawing for reference, drill pilot holes, and attach a pair of 8" leather straps to the hamper and lid.

Finally, add the finish

1 Sand the hamper smooth. (We used a flap sander and just lightly sanded the hamper, but not the lid, to smooth any grain raised from the soaking of the pieces.)

2 Cover the exposed leather with masking tape. Apply the finish of your choice. (We sprayed on several coats of polyurethane.) If you apply the finish with a brush, do it lightly to prevent runs on the uprights and weavers.) Remove the masking tape from the leather.

Buying Guide

- **Copper nails.** 2mm × 1" rose-type head, 100 nails per kit. One kit $10.50 ppd, two kits for $19.50 ppd. Faering Design, Inc., RD 2, Box 950, Putney, VT 05346. No phone orders please.

Produced by Marlen Kemmet
Project Design: Keith Raivo
Photographs: Hopkins Associates
Illustrations: Kim Downing

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THE ULTIMATE ROUTER FENCE

A "SUPERSTAR" UPGRADE FOR YOUR

With space at a premium in my shop, I need everything to work doubly hard. With that in mind, I decided to mount my router under a tablesaw extension (shown on *page 48*), enabling me to clamp the router fence to my standard tablesaw fence. I designed the router fence with a pickup for dust collection, a high fence for vertical stability, and a right-angle support for biscuit joinery. A clear acrylic guard helps ensure safety and an acrylic plate in the center allows me to see the bit. I also added a pushblock to minimize chip-out and ensure safety when cutting end grain.

Refer to the preceding article to see some of the uses for this versatile router-fence system.

Design Editor

Prepare the pieces for the fence assembly

1 From ¾" plywood (we used birch), cut the upright (A), base (B), clamping fence (C), and fence supports (D) to the sizes listed in the Bill of Materials.

2 Transfer the dimensions from the Parts View drawing to the supports (D); cut them to shape.

3 Mark the hole centerpoint on one support for a vacuum-hose opening. Clamp the support to your drill press table, and bore a hole in the support to accommodate your vacuum hose. (We used a circle cutter to cut a 2¼" hole to fit our particular shop vac hose.) You could also drill a blade-start hole, and cut the vacuum hole to shape with a scrollsaw or jigsaw.

4 Using the Fence drawing for reference, mark the centerpoints, and drill all the mounting holes in the upright (A). Don't forget to drill three ¾" counterbores ⅛" deep with a 5⁄16" hole centered inside for the ¼" T-nuts.

5 Mark the location, and cut the 1¾ × 2" notch in the upright (A) and a ¾ × 2" notch in B. Next, cut a 1⁄16 × 1⁄16" sawdust kerf along the bottom front edge of the upright.

6 Tap three ¼" T-nuts into their mating counterbored holes in the back surface of the upright (A).

7 Drill a 2" hole in the base for hanging when not in use.

Assemble the fence assembly

1 Clamp the upright to the base, and use the previously drilled mounting holes in the upright to drill the pilot holes centered along the front edge of the base.

2 Glue and screw the upright to the base. Before the glue dries, glue and screw the supports (D) in place to keep the upright square to the base.

3 Tilt your tablesaw blade 2° from vertical, and raise it 2½" above the surface of the saw table. Bevel-cut the *back edge* of the base

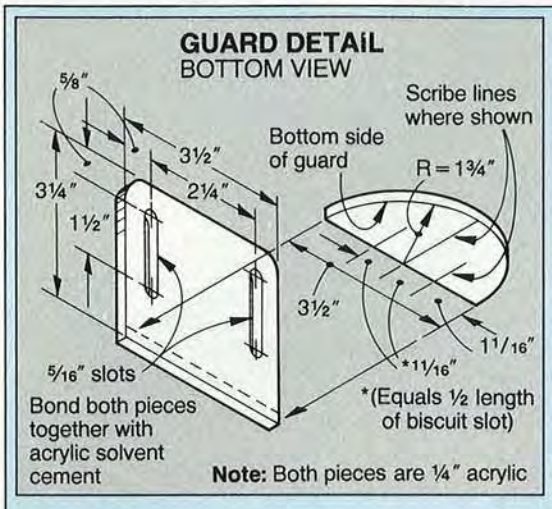
Continued

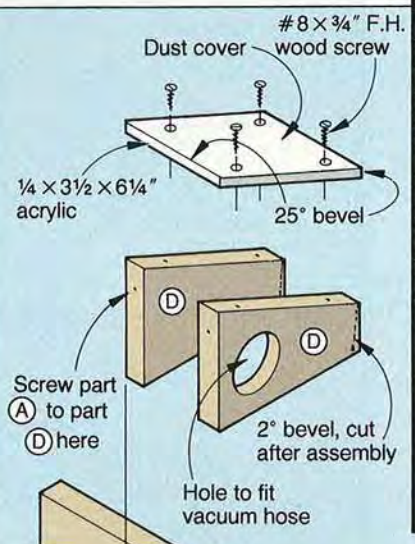
SYSTEM
ROUTER TABLE

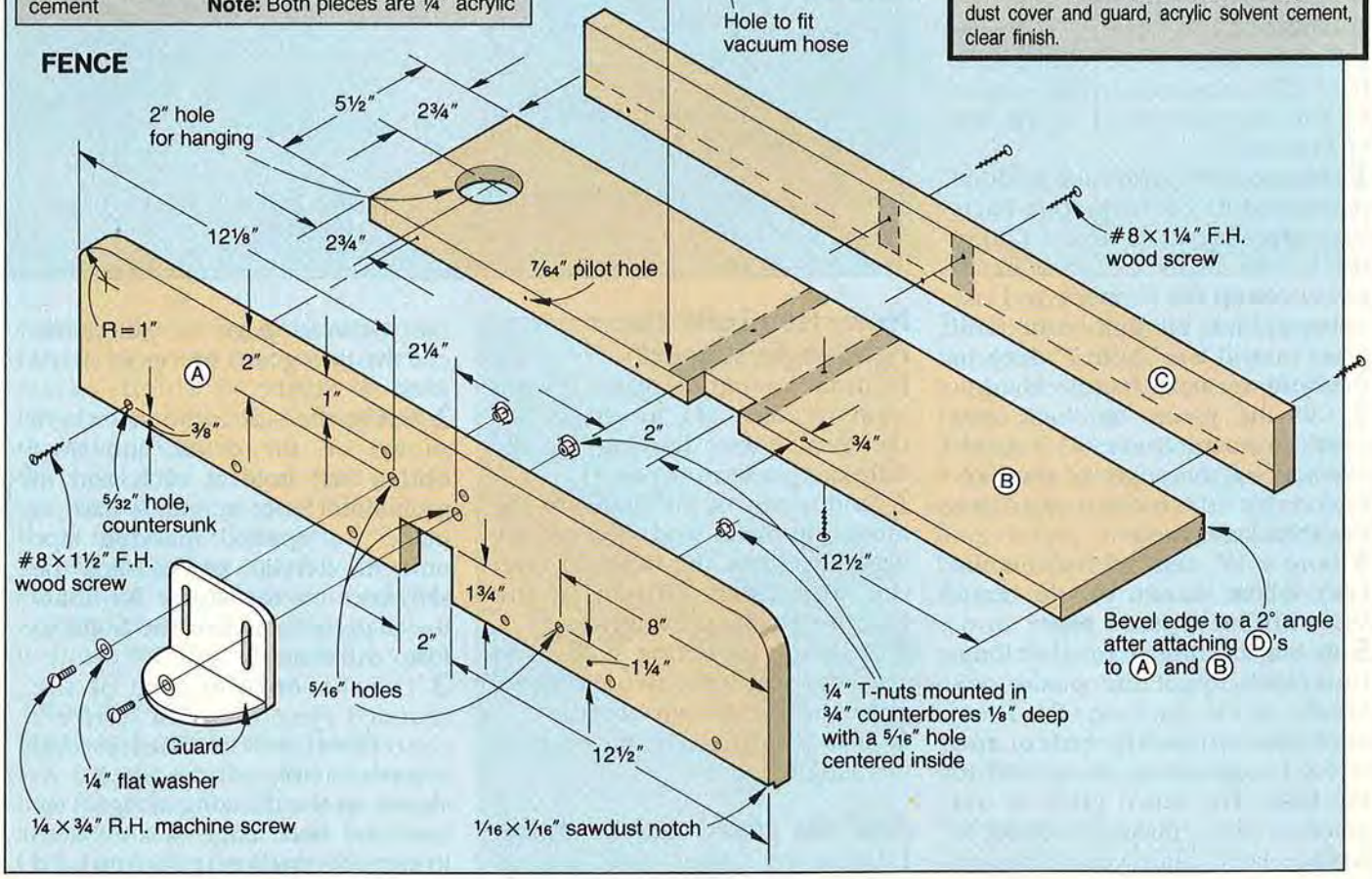
Bill of Materials

Part		Finished Size T	W	L	Matl.	Qty.
FENCE ASSEMBLY						
A	upright	¾"	5"	27"	BP	1
B	base	¾"	5½"	27"	BP	1
C	clamping fence	¾"	2½"	27"	BP	1
D	supports	¾"	4"	5½"	BP	2
PUSHBLOCK						
E	handle	1 1/16"	3¼"	4½"	B	1
F	base	¾"	5½"	7"	B	1
G	fence	1 1/16"	1"	8"	B	1
RIGHT-ANGLE SUPPORT						
H	mounting plate	¼"	1¾"	5¼"	BP	1
I	support	¾"	5¼"	7½"	BP	1
FEATHER BOARDS						
J	long one	¾"	2⅜"	18"	B	1
K	short one	¾"	2⅜"	8¾"	B	1
L	support	¾"	¾"	9½"	B	1

Material Key: BP–birch plywood, B–birch
Supplies: #8×¾" flathead wood screws, #8×1¼" flathead wood screws, #8×1½" flathead wood screws, 3–¼×¾" roundhead machine screws with 3–¼" flat washers and 3–¼" T-nuts, ½" dowel stock, ¼" acrylic for dust cover and guard, acrylic solvent cement, clear finish.







and supports. Bevel-cutting this edge at 2° ensures that the clamping fence (C) is positioned 2° from vertical after it is attached to base/supports. When clamping the assembled fence to your tablesaw fence later, the bevel causes the front edge of the fence to be held firmly against the router-table surface. This prevents sawdust and chips from building up between the fence and table.

4 Drill the mounting holes, and glue and screw the clamping fence (C) to the back beveled edge of the fence assembly.

5 From ¼" acrylic, cut the dust cover to size, bevel-cutting or sanding the ends at a 25° angle where shown on the Parts View.

6 Drill and countersink mounting holes through the acrylic dust cover and into the top edge of each support (D).

Let's construct the pushblock

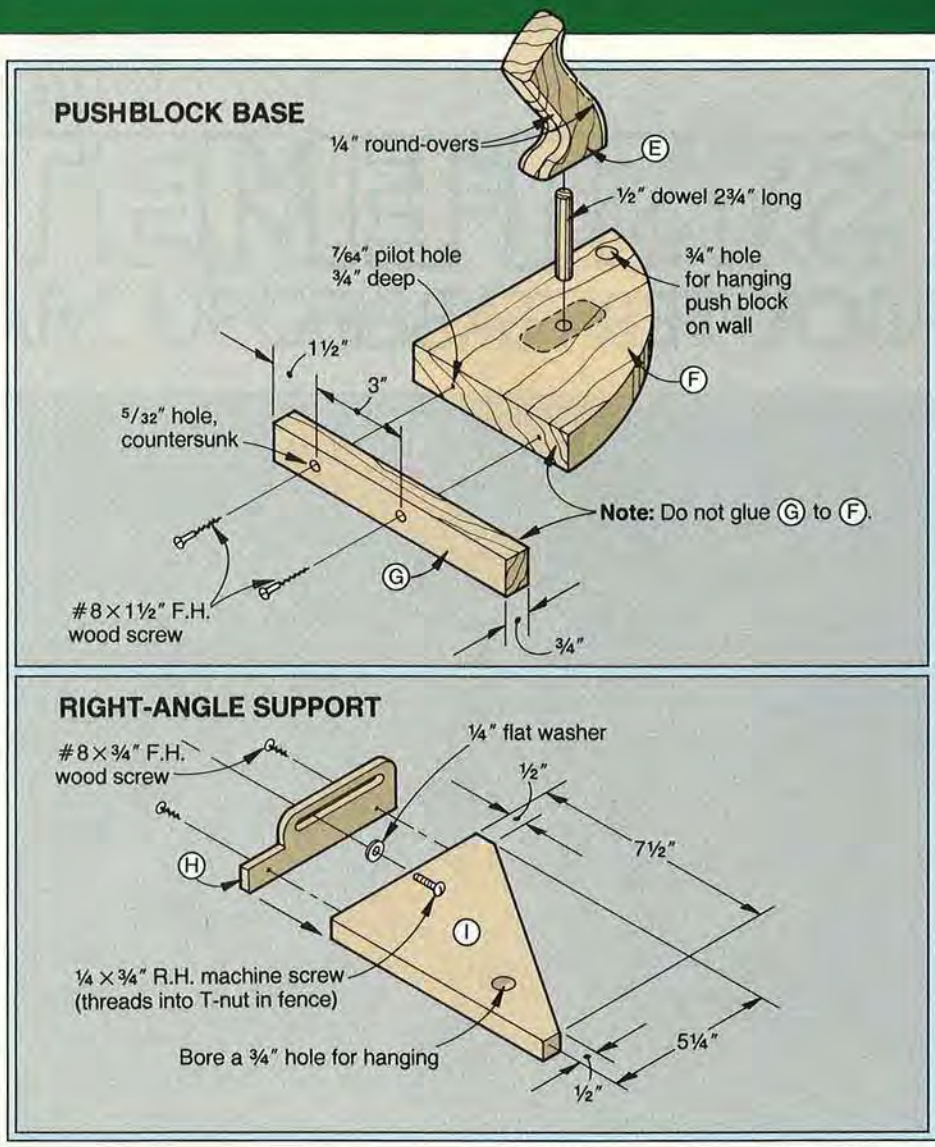
1 Cut the pushblock handle (E), base (F), and removable fence (G) to the sizes listed in the Bill of Materials.

2 Enlarge and transfer the gridded patterns (E, F) from the Parts View drawing to the stock. Clamp the handle blank (E) in a handscrew clamp for support, and use a brad-point bit and your drill press to drill a ½" hole 2" deep in the bottom of the handle blank.

3 Cut the pieces to shape and sand smooth. Rout ¼" roundovers along the edges of the handle where shown on the Pushblock drawing.

4 Bore a ½" and ¾" hole in the base where shown on the Parts View on the *opposite page.*

5 Cut a ½" dowel to 2¾" long. Glue and dowel the pushblock handle (E) to the base (F). Then, drill the mounting holes, and screw (no glue) the fence (G) to the base. The fence piece is not glued in place, making it easier to replace later, after you've routed into it numerous times.



Now, let's build the right-angle support

1 Cut the mounting plate (H) and support piece (I) to shape. See the Parts View drawing for the full-sized pattern of part H.

2 Drill a pair of 5/16" holes in the mounting plates, and then cut the waste between the holes to form the slot where shown in the Right-Angle Support drawing.

3 Drill the mounting holes, and glue and screw the two pieces together where shown *above.*

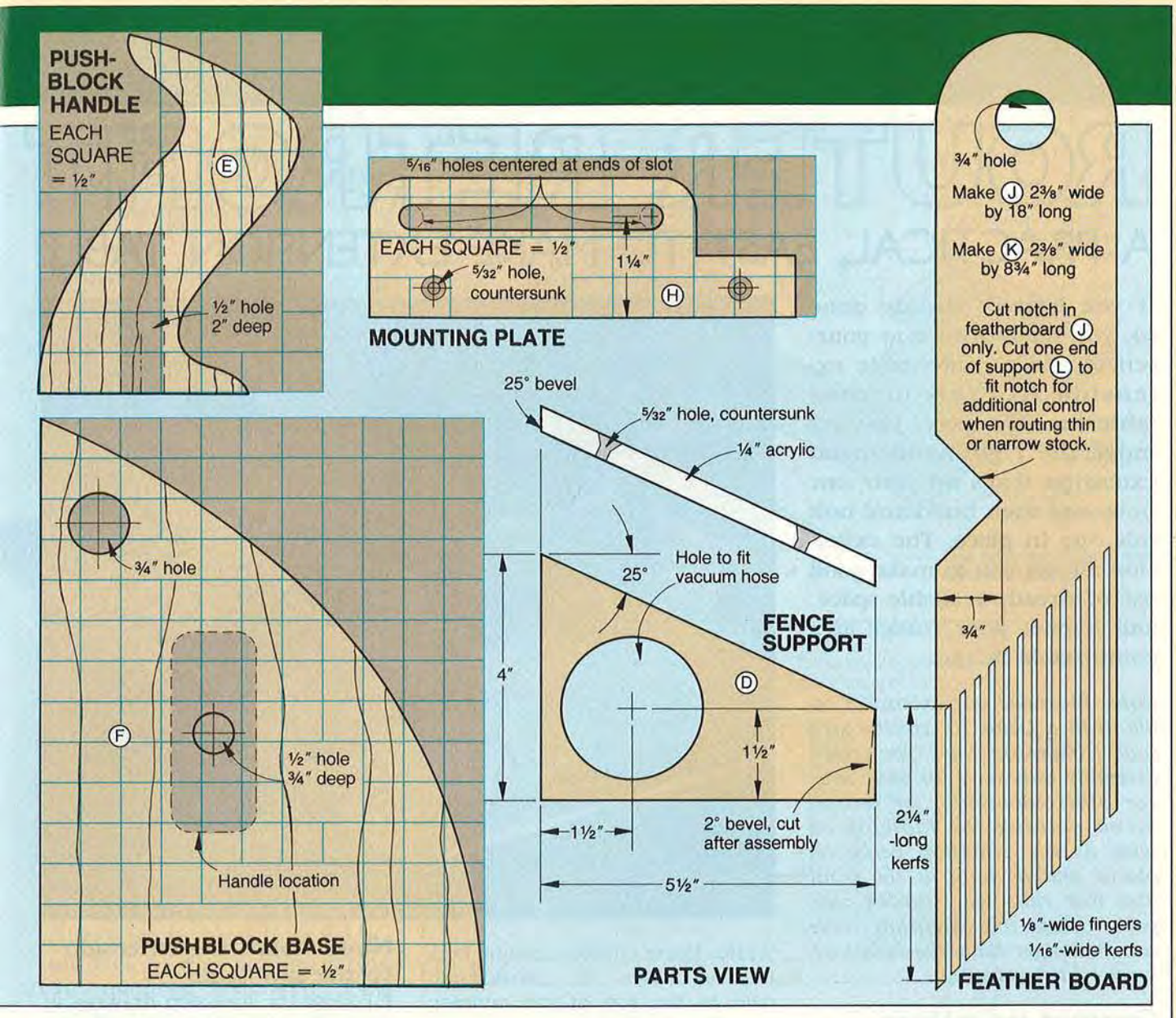
4 Bore a ¾" hole in the support for hanging.

Add the guard and the finish

1 Using the Guard detail accompanying the Fence drawing on the *previous page* for reference, cut the two guard pieces to shape from ¼" acrylic.

2 Scribe the slot locations where shown on the detail, and then drill a 5/16" hole at each end of each slot. (Since acrylic is hard to mark, we applied masking tape onto the acrylic, and marked the slot lines on the tape.) Scrollsaw the material between the holes to form the slots.

3 On the *bottom* face of the rounded piece of acrylic, scribe a centerline and two cutter end alignment lines on the acrylic. As shown in the drawing at *right,* we used the *back* edge of an X-acto knife. We found it difficult to scribe a straight line using the



cutting edge of the knife. The distance between the alignment marks should be equal to the length of the biscuit slot cut with the biscuit cutter.

4 To make the scribed lines stand out and easier to see, highlight them with a marking pen.

5 Hold the pieces squarely together, and use acrylic solvent cement to bond the two pieces of acrylic to finish forming the guard.

Time for the feather boards and finish

1 Using the Feather Board drawing for reference, cut one long and two short feather boards (J, K) and a feather-board support (L) to size and shape.

2 Mark the locations and use your bandsaw to cut 1/16" kerfs 2¼" long where shown on the Feather Board drawing.

3 Mark the centerpoints, and bore a ¾" hole in the radiused end of each feather board. Use the holes later when hanging the feather boards between use.

4 Add a clear finish to all the wood parts. Later, attach the guard to the upright (A) and the dust cover to the supports (D).

Turn to *page 81* for information on making the guard.

Produced by Marlen Kemmet
Project Design: James R. Downing
Photographs: Hopkins Associates
Illustrations: Kim Downing

Print this article

ROUTER RETROFIT

A PRACTICAL, EASY-TO-MAKE EXTENSION TABLE

If you haven't already done so, you really owe it to yourself to add a router-table extension like this to your tablesaw. It's easy. Just remove the right-hand metal extension that's on your saw now, and then build and bolt this one in place. The extension allows you to make good use of already-available space, and it puts your router at a comfortable height.

Note: *We made our extension table to fit a Delta 10" contractor's saw. Dimensions and connection assembly may vary for your saw. For other tablesaws, we recommend making the tabletop as wide as the extension being replaced and as long as the front and rear rails can sturdily support. Often, the extension table can be longer than the metal extension it's replacing.*

Construct the tabletop assembly first

1 Cut the extension tabletop (A) to size from ¾" plywood (we used birch plywood).

2 Cut the banding strips (B, C) to size, mitering the ends.

3 To mount the banding strips to the plywood, drill and countersink mounting holes through the strips and into the tabletop edges. With the top edges flush, glue and screw the strips to the tabletop. Sand the top surface of the banding flush with the top of the plywood tabletop.

4 Measure the length and width of the banded top, and cut a piece of plastic laminate to the measured size plus 1" in length and width. Using contact cement, center and adhere the plastic-laminate to the top of the tabletop assembly (A, B, C).

5 Fit your router with a flush-trimming bit, and rout the edges of the laminate flush with the edges of the banding.

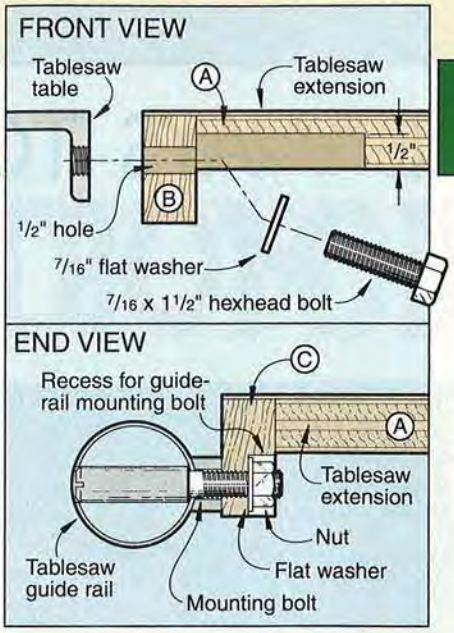
6 Follow steps 1 through 5 on the Tabletop Layout drawing on the *opposite page* to form the opening in the tabletop for the router plate. (When routing the ⅜" rabbet ⅜" deep in step 5 of the drawing, we routed to 5/16" deep on the first pass, and then routed 1/64" deeper per pass until the top surface of the plate was perfectly flush with the top surface of the tabletop laminate. See the Buying Guide for our source of a precut router plate. Or have a piece of ⅜" acrylic cut to size.)

Now, mount the extension to the saw table

1 Follow the four-step drawing at *far right* to mark and drill the mounting holes in the tablesaw extension. Before drilling, double-check that the top surface of the extension table will be perfectly flush with the top surface of your saw table.

2 Use a chisel to form 1½"-wide by 1¾"-long by ½"-deep notches on the bottom side of the extension for housing the hexhead bolts. See the Front View drawing *above right* for reference. Fasten the extension to the saw table.

3 Using the holes in the guide rails as guides, mark their location onto the outside surfaces of both banding pieces (C). Remove the extension table from the saw table, and drill the guide-rail



MOUNTING THE EXTENSION

Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A tabletop	¾"	15½"	25½"	BP	1
B banding	¾"	1½"	27"	M	2
C banding	¾"	1½"	17"	M	2

Material Key: BP–birch plywood, M–maple.
Supplies: #8×1¼" flathead wood screws, 18×28" plastic laminate, contact cement, bolts and flat washers for mounting the extension table to saw table.

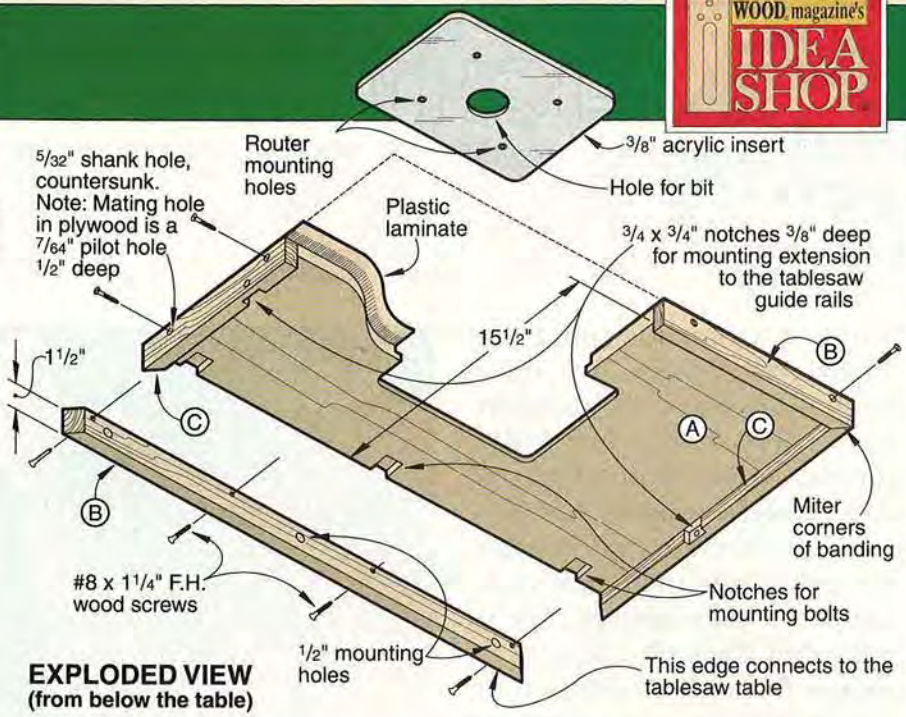
mounting holes where marked. See the End View for reference. Chisel a ⅜"-deep notch on the inside face of the banding strips (the mounting bolts aren't long enough to go completely through the ¾"-thick banding).

4 With the top edges perfectly flush, fasten the extension table to the saw table and rails.

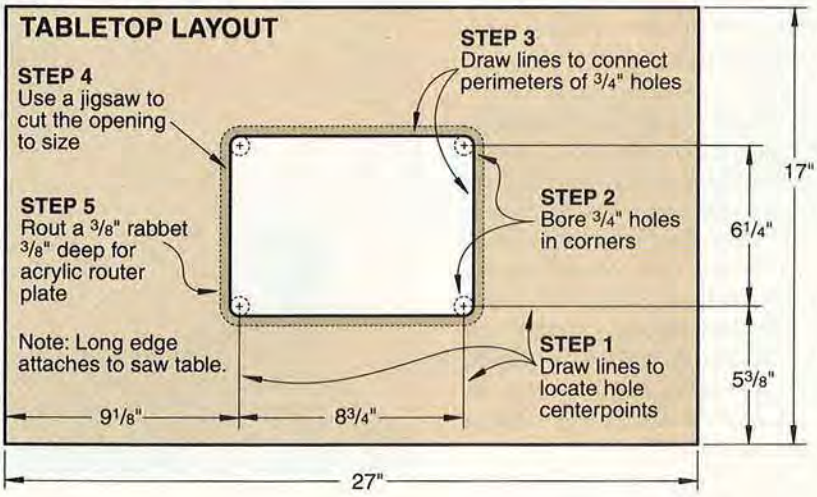
Buying Guide

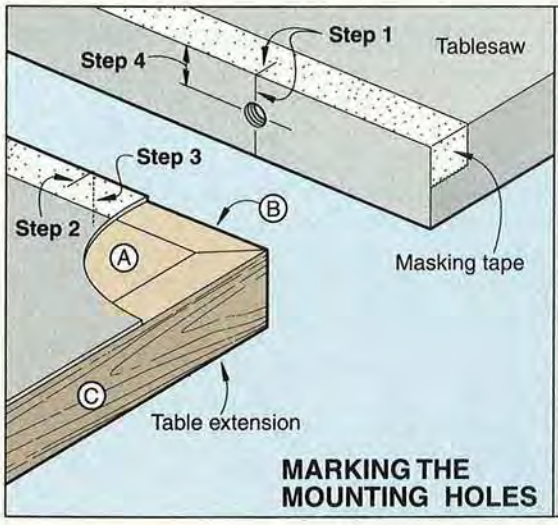
• **Router plate.** ⅜×7¾×10¼" clear acrylic insert. Catalog no. 101. $21.50 ppd. If your router uses metric screws, specify router brand and model for a set of extra-long screws for mounting the router to the plate. Add $2 for screws. Woodhaven, 5323 W. Kimberly Rd., Davenport, IA 52806. Or call 800/344-6657 or 319/391-2386 to order.

Produced by Marlen Kemmet
Project Design: James R. Downing
Photograph: Wm. Hopkins
Illustrations: Kim Downing


3/8" acrylic insert
Hole for bit
Router mounting holes
5/32" shank hole, countersunk. Note: Mating hole in plywood is a 7/64" pilot hole 1/2" deep
Plastic laminate
3/4 x 3/4" notches 3/8" deep for mounting extension to the tablesaw guide rails
15 1/2"
1 1/2"
A
B
C
Miter corners of banding
Notches for mounting bolts
#8 x 1 1/4" F.H. wood screws
1/2" mounting holes
This edge connects to the tablesaw table

EXPLODED VIEW
(from below the table)





MARKING THE MOUNTING HOLES

STEP 1
Mark and transfer the centerlines from the saw-table holes to masking tape.

STEP 2
Position the extension table against the saw table, and transfer the marks.

STEP 3
With a square, extend the lines down the edge of the table extension banding (B).

STEP 4
Measure the distance from the top of the saw table to the centerline of the existing hole. Transfer that dimension to the table extension. Drill the mounting holes through the banding.

PROVEN TECHNIQUES FROM THE SHOP TESTED WOOD MAGAZINE SHOP

EIGHT SURE-FIRE WAYS TO MAKE THE MOST

Moving at speeds of about 20,000 revolutions per minute and able to slice through hardwoods like a hot knife through butter, your router is one impressive tool. And, it's also one of the most versatile pieces of equipment in your shop. In this article, we'll walk you through eight techniques that will enable you to give your router a good workout—and produce some terrific woodworking results.

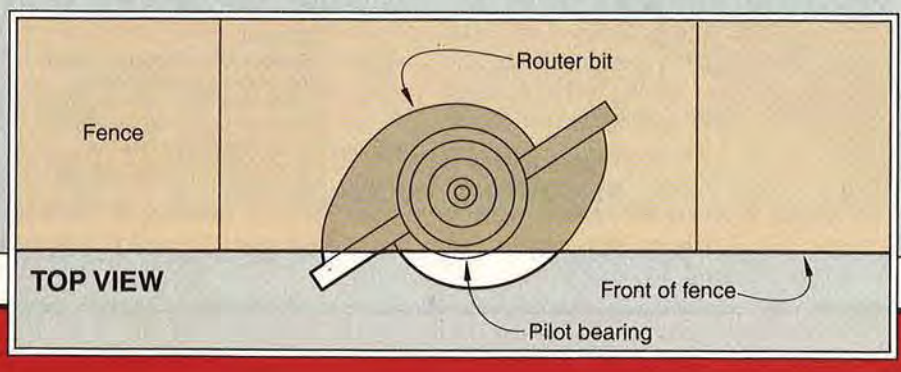
Note: *For best results, you need to mount your router in a table such as the tablesaw extension on* page 48. *If you can't mount your router to your tablesaw, you may want to build our stand-alone, bench-top router table. To order plans, see the Buying Guide on* page 55. *You'll also want to build a few router-table helpers such as those shown in the fence system on* pages 44–47.

A GOOD ROUTER TABLE FENCE IMPROVES WOODWORKING RESULTS

Basically, a router-table fence consists of a straight piece of wood with a centered notch that surrounds the router bit. Like a tablesaw's fence, a router-table fence gives you a flat surface to guide a workpiece along. By adjusting the fence position you can control the router bit's width of cut. More sophisticated fences, like the one on *page 44*, have built-in dust collection and a guard to help keep your fingers away from the bit.

Router-table fences are a must for bits without pilot bearings, but we also suggest using a fence when routing straight workpieces with piloted bits. Why? The fence minimizes the chances of kickback and prevents you from accidentally routing a portion of the workpiece's end grain when you only want to rout a board's edge.

To successfully use piloted bits with a router fence, you need to adjust the fence so the bit's bearing sits flush with the fence front or protrudes just beyond it as shown *left*. You can do this quickly by sighting along the length of the fence.



OF YOUR ROUTER

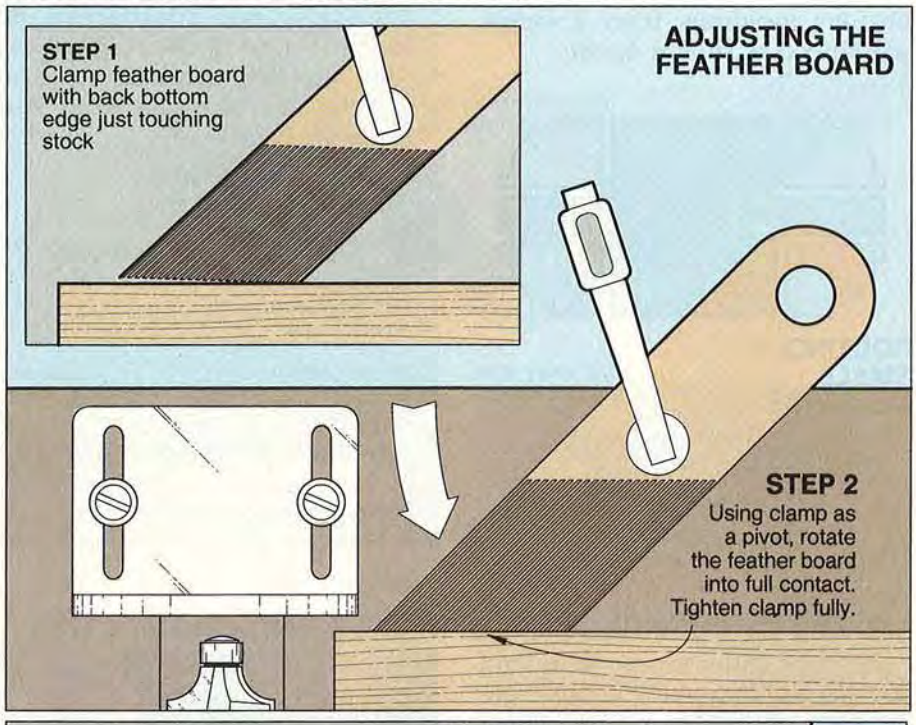
2 FEATHER BOARDS HELP YOU HANDLE TICKLISH SITUATIONS

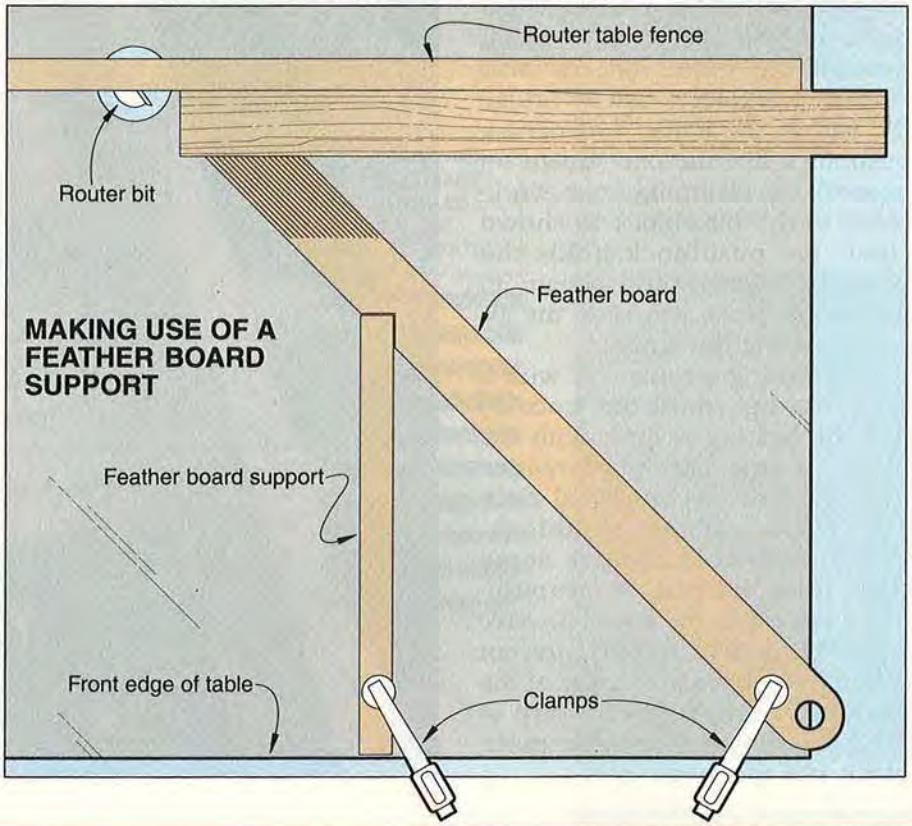
Feather boards like the ones shown on *page 47* assist you in two ways. First, the angled, comb-like fingers prevent workpieces from kicking back. And, second, feather boards help you rout consistently profiled edges.

As shown in the photo *below*, feather boards hold workpieces firmly against the fence and table as you feed them. Without feather boards, it's hard to maintain consistent pressure on the workpiece near the router bit, especially with stock over 2' long.

To properly position the feather boards, follow the procedure *right*. Be careful not to adjust the feather boards so tightly against the workpiece that you slow the rate of feed. If you have a deep router table—one where the bit sits more than 12" from the table's front edge—you should clamp on a ¾×¾" feather board support as shown *below right*. This prevents the feather board from shifting.

Feather boards ensure safe, consistent cuts on long workpieces.

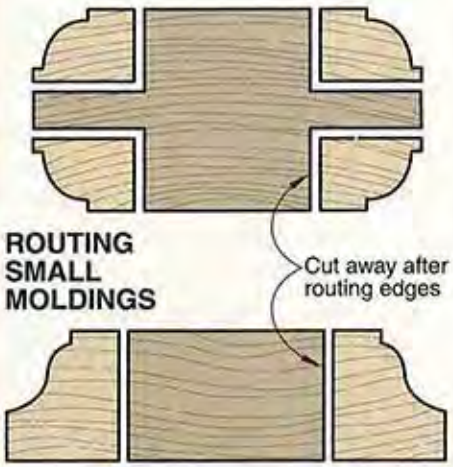

ADJUSTING THE FEATHER BOARD
STEP 1
Clamp feather board with back bottom edge just touching stock
STEP 2
Using clamp as a pivot, rotate the feather board into full contact. Tighten clamp fully.



MAKE THE MOST OF YOUR ROUTER

3 HOW TO ROUT SMALL MOLDINGS

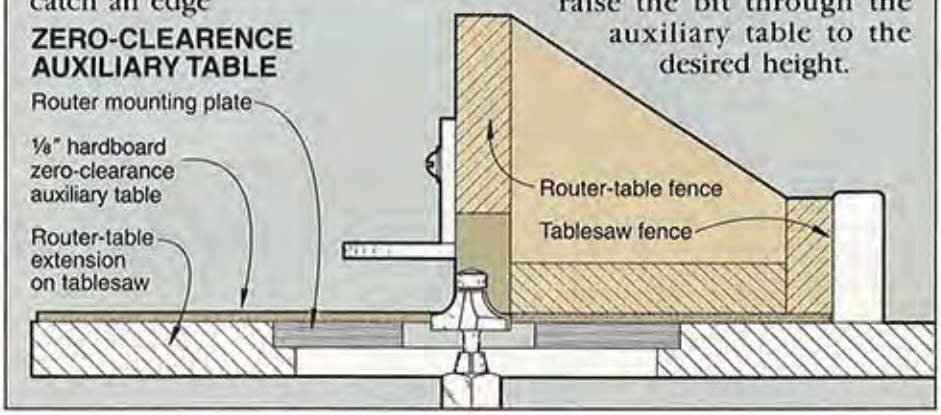
For safety's sake, it pays to rout small moldings along the edge of a wide board, and then saw off the molding to final size with your tablesaw. To cut down on waste, you can often rout two or four moldings from a single workpiece as shown *below.*



4 ZERO-CLEARANCE TABLE LENDS SUPPORT TO SMALL WORKPIECES

Large-diameter router bits leave big holes in your router's mounting plate, and that's just fine—until you try to rout small workpieces with small-diameter bits. At these times, you need a zero-clearance auxiliary table like the one shown *below.* It fully supports the workpiece so it can't tip into the hole and catch an edge

To make a zero-clearance auxiliary table, cut a piece of ⅛" hardboard to match the size of your router table, and drill a centered hole in it that's just slightly larger than your router bit's pilot bearing. Place the hole over the router bit, and clamp your fence onto the auxiliary table. Then, turn on the router and raise the bit through the auxiliary table to the desired height.



5 USE A PUSHBLOCK TO TACKLE END-GRAIN CUTS

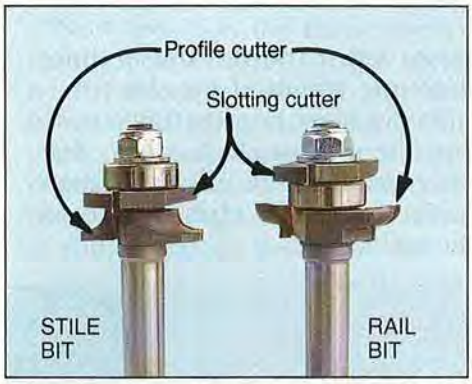
Since end-grain surfaces tend to be narrow, you may encounter lack of control or kickback as you try to pass them through the router bit. To help narrow workpieces safely bridge the gap in the fence, you need a pushblock like the one shown on *page 46.* By clamping your workpiece to the pushblock as shown *right,* the pushblock holds the workpiece steady and square to the router bit as you slide the assembly along the fence.

When using a router bit with a pilot bearing, adjust the fence so that the bearing is flush with the fence or just barely protrudes from the fence as described earlier. As you use the pushblock, you'll inevitably remove some stock from the part of the pushblock closest to the fence. To save your pushblock and to prevent splintering on the exit edge of the workpiece, simply place a strip of ¾×¾" scrap between the pushblock and the workpiece.

6 HOW TO MASTER STILE-AND-RAIL SETS

With a set of these bits, you can make professional-quality cope-and-stick door frames such as the one shown *right*. However, you need to know what to look for when buying a stile-and-rail router bit set, and how to make it work effectively.

We've tried several versions of these sets, and we prefer those with rugged ½" shanks. And, we've had our best luck with the sets that have a bearing between the profile cutter and the slotting cutter on the rail bit as shown in the set *below*.

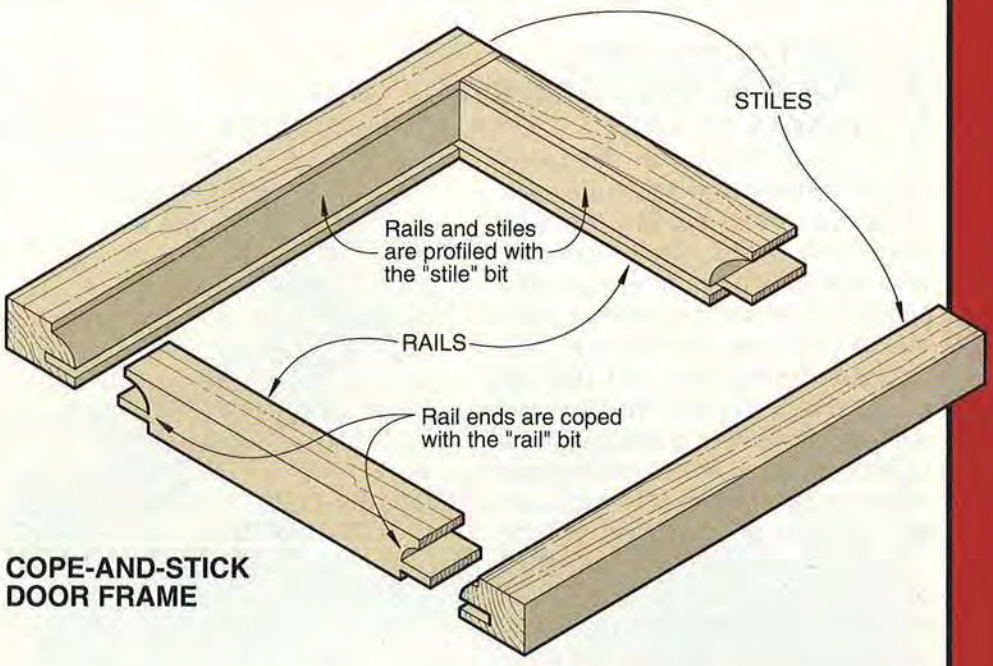


Quality stile-and-rail bit sets have rail bits with pilot bearings between the slotting and profile cutters.

Sets such as these have thin shims between the cutters that may need to be adjusted, so we suggest you make your first cuts in scrap stock. When adjusted, the bits will produce rails and stiles that fit snugly together, with flush faces and profiles that align.

To make a door frame, start by adjusting the stile bit to the height that yields the desired profile. Although called a "stile" bit, this bit cuts the visible profile on both the stiles *and* rails. The "rail" bit makes the coping cut on the ends of the rails.

Adjust the fence so the stile bit's pilot bearing is flush with the fence or barely protrudes from the fence. With the face side down, rout the profile along the inside edge of both stiles as shown in the photo *right top*.



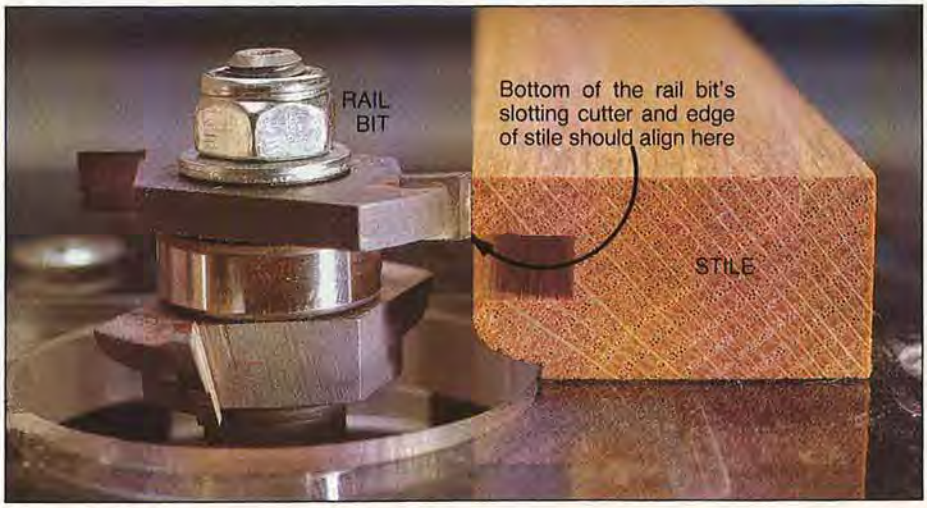
COPE-AND-STICK DOOR FRAME

To cut the coped rail ends, insert the rail bit and adjust its height by holding a profiled stile edge up to it as shown *right bottom*. Again, adjust the fence so that the bit's bearing is flush with the fence or just barely protrudes from the fence. With the rails face side down and clamped to a pushblock, make the coped cuts.

Finally, reinsert the stile bit, and profile the inside edges of the rails to match the profiled edge of the stiles. By saving this step for last rather than profiling the stiles and rails at the same time, you can clean up any splintering on the rails caused by the coping cuts.

Continued

To produce a cope-and-stick door frame, first profile the inside edge of the stiles. If necessary, use feather boards.



Adjust the height of the rail cutter by aligning its slotting cutter with one of your stiles.

MAKE THE MOST OF YOUR ROUTER

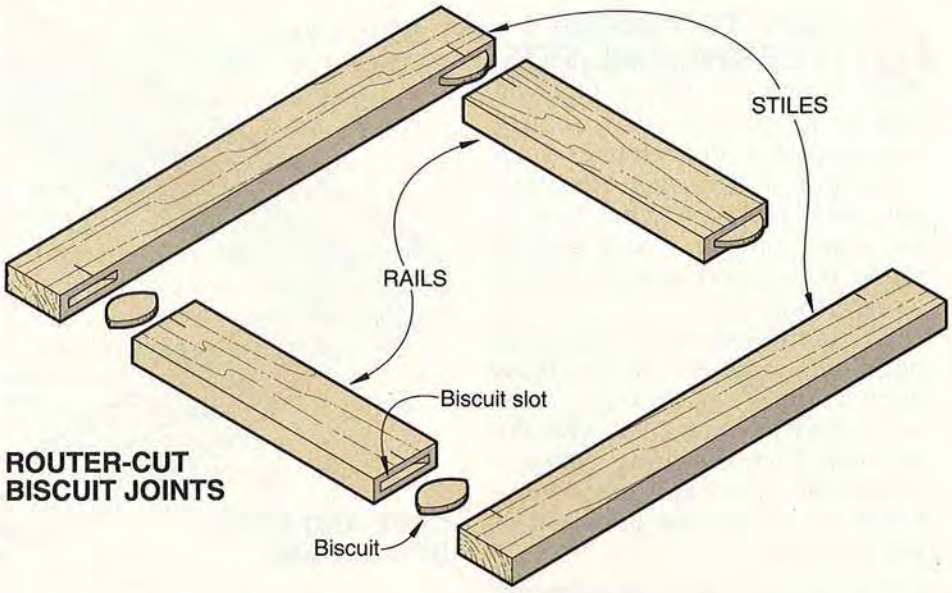
7 BISCUIT JOINERY: YOUR ROUTER TABLE MAKES IT EASY

We've tried several router-based biscuit-joinery systems, and none of them work as well as the Mini Biscuits & Bits Kit from Woodhaven. The kit's 6mm slotting cutter produces a slot that's just the right size for holding Woodhaven's ¼"-thick, 1¼"-long biscuits (100 biscuits included in the kit). Because we like this kit, we designed features into the router-fence system on *pages 44–45* that will help you take advantage of Biscuits & Bits.

With this kit you can join simple frames such as the one shown in the drawing *right*, with rails or stiles as narrow as 1½". First, insert the slotting cutter into your router table and adjust it so that it cuts a slot centered on the thickness of the workpieces. Position the fence so the bit's bearing protrudes 1/32". Be sure to center the bearing under the black cursor line on the fence guard.

Then, dry-clamp the frame's members (face side down), and mark centered pencil lines across each joint. Remove the clamps.

Hold one end of the stile against the fence, and slowly pivot the other end into the cutter.



ROUTER-CUT BISCUIT JOINTS

To cut slots into the stiles, align each workpiece mark with the black cursor line on the fence guard. Now, hold the opposite end of the workpiece against the fence, and pivot the workpiece into the slotting cutter as shown *below left*. (The red cursor lines show the length of the slot.)

To cut slots into the rails, position the right-angle guide so that the marks on the rail ends align with the black cursor line as shown *below*.

A right-angle guide helps you control slot cuts made into the rail ends. You can position the guide along the fence for workpieces of various widths.

To assemble the door, apply woodworker's glue to the ends of the rails, the biscuits, and the inside surfaces of the slots. Clamp the assembly, checking for square, and allow the glue to dry.

You also can use the Biscuits & Bits Kit to join mitered frame pieces as narrow as 1¾". First, center the cutter on the thickness of the workpiece. Then, measure the width of a frame piece, divide this figure in half, and adjust the fence this distance from the center of the slotting cutter. For example, if the frame measures 2" wide, you should position the face of the fence 1" from the center of the bit.

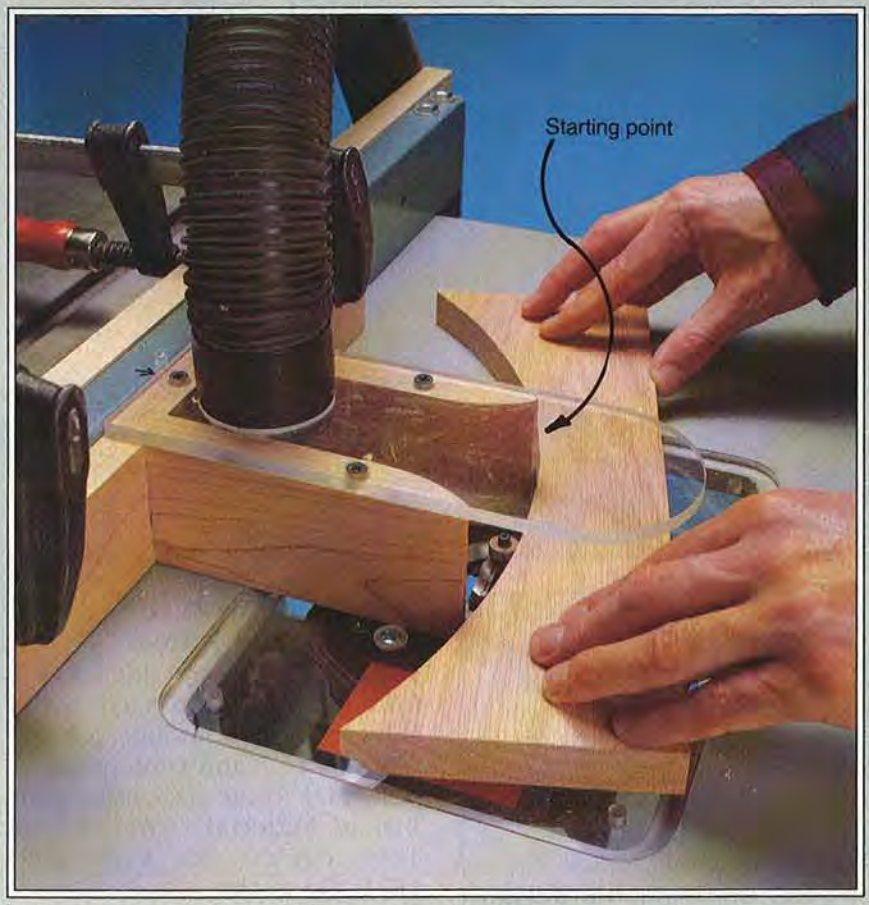
Now, position the frame pieces in their assembled order on a nearby work surface. To cut the biscuit-holding slots for each joint, place the workpieces face down on the router table and feed them from right to left into the slotting cutter as shown *below*.

For each joint, place the outside edge of one of the pieces against the fence *(top photo)* and the inside edge of the adjoining piece against the fence *(bottom photo)* as you cut the slots.

8 WHEN CUTTING CURVES, USE A FREEHAND GUARD

Like a fence, a freehand guard (see the building instructions on *page 73*) helps you safely feed workpieces into a router bit and collects wood shavings as you rout. Unlike a fence, a freehand guard like the one *below* helps you rout curved workpieces and works only with router bits having pilot bearings. Here's how to use this invaluable helper.

After clamping the freehand guard to a fence, adjust it forward and back to accommodate your workpiece. To start a cut, hold the workpiece against the guard's starting point, and slowly pivot the workpiece into the bit. When the workpiece makes contact with the pilot bearing, remove the hand pressure against the starting point and rout the entire edge.



A freehand guard helps you rout curved workpieces.

Buying Guide:

- **Benchtop Router Table Plan,** send check or money order (U.S.) for $7.95 ppd. to *WOOD*® Magazine, P.O. Box 9255, Dept. RP-1, Des Moines, IA 50306.
- **Mini Biscuits & Bits Kit** with ¼"- or ½"-shank slotting cutter and 100 biscuits, $37.99 ppd. from Woodhaven, 5323 W. Kimberly, Davenport, IA 52806. Call 800/344-6657.

Written by Bill Krier with Jim Downing
Photographs: Hopkins Associates

Illustrations: Jim Downing; Kim Downing

OAK-PANELED BLANKET

Print this article

A WOOD MAGAZINE F·A·M·I·L·Y HEIRLOOM PROJECT

ABOUT THIS DESIGN

When designing this cedar-lined hope chest, I wanted a frame-and-panel look that didn't require large-diameter panel bits or the heavy-duty router or shaper needed to drive them. So, I opted for a simpler, more doable design that looked every bit as good as the traditional raised-panel approach. My solution—recessed ¼" plywood panels, bordered with mitered trim and oak framing. The singular results, *above*, speak for themselves.

Marlen Kemmet

How-To Editor

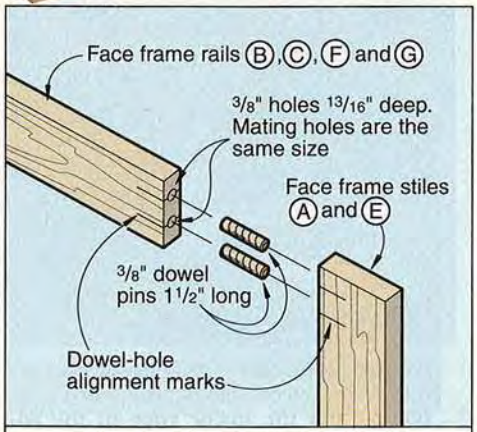
Let's start with the dowel-joined frames

1 To construct the identical front and back frames, cut the stiles (A), bottom rails (B), top rails (C), and center mullions (D) to the sizes listed in the Bill of Materials from ¾" oak. Then, cut the side frame pieces (E, F, G) to size.

2 Cut a ¾" rabbet ⅜" deep along one edge of each stile (A) where shown on the Exploded View and Frame Assembly drawings.

3 Dry-clamp (don't glue) the rails and mullions between the stiles for each of the four frames where shown on the Frames drawing. Using a square, carefully make the dowel-hole alignment marks (centerlines) where dimensioned on the Frames and Dowel Joint

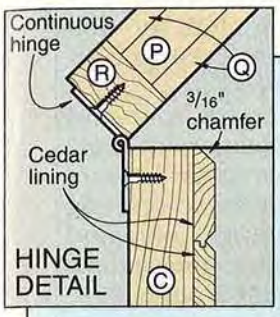
Text continued on page 58

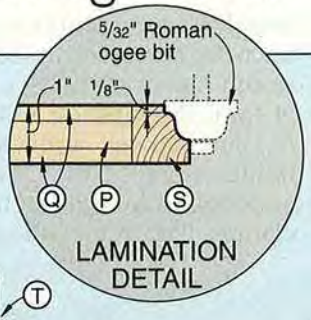

Face frame rails Ⓑ,Ⓒ,Ⓕ and Ⓖ
3/8" holes 13/16" deep. Mating holes are the same size
Face frame stiles Ⓐ and Ⓔ
3/8" dowel pins 1 1/2" long
Dowel-hole alignment marks

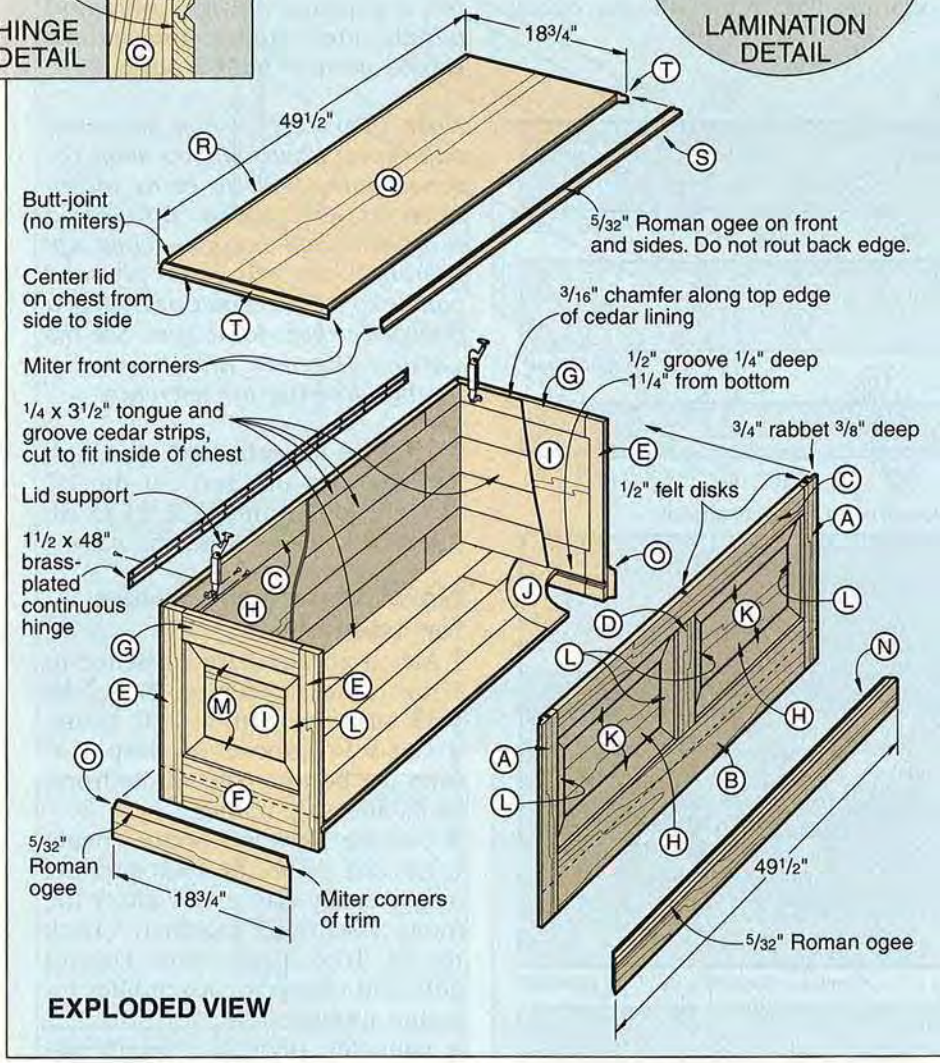
DOWEL JOINT

CHEST

A beautiful solution to your storage needs







EXPLODED VIEW

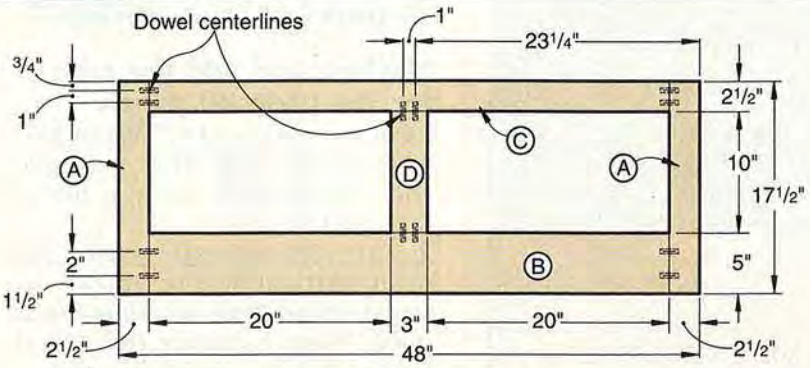
Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
FRAME ASSEMBLIES					
A stiles	3/4"	2 1/2"	17 1/2"	O	4
B btm. rails	3/4"	5"	43"	O	2
C top rails	3/4"	2 1/2"	43"	O	2
D mullion	3/4"	3"	10"	O	2
E stiles	3/4"	2 1/8"	17 1/2"	O	4
F btm. rails	3/4"	5"	13"	O	2
G top rails	3/4"	2 1/2"	13"	O	2
H front panels	1/4"	11"	21"	OP	4
I end panels	1/4"	11"	14"	OP	2
BOTTOM PANEL					
J bottom	1/2"	16 15/16"	46 15/16"	FP	1
PANEL TRIM					
K* top & bottoms	3/8"	1 1/2"	20"	O	8
L* ends	3/8"	1 1/2"	10"	O	12
M* top & bottoms	3/8"	1 1/2"	13"	O	4
BOTTOM AND BASE MOLDING					
N* front	3/4"	3"	49 1/2"	O	1
O* sides	3/4"	3"	18 3/4"	O	2
LID					
P center	1/2"	17 1/4"	48"	FP	1
Q* top & bottom	1/4"	17 1/4"	48"	OP	2
R* back	3/4"	1"	48"	O	1
S* front	3/4"	1"	49 1/2"	O	1
T* sides	3/4"	1"	18 3/4"	O	2

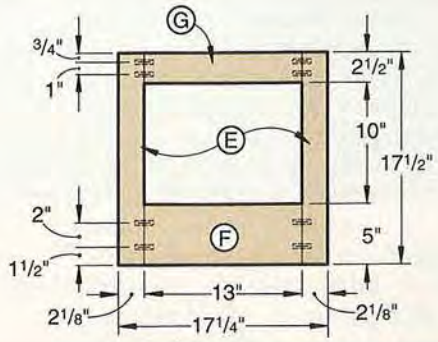
*Initially cut parts marked with an * oversized. Then, trim each to finished size according to the how-to instructions.

Material Key: O–oak, OP–oak plywood, FP–fir plywood

Supplies: 3/8" dowel pins 1 1/2" long, contact cement, stain, finish.



FRONT AND BACK



SIDE

FRAMES

BLANKET CHEST

drawings. Then, mark the mating joints with numbers so you can assemble each frame with the same pieces and in the same order later. Remove the clamps.

4 Align a doweling jig with the marked centerlines, and drill 3/8" holes 13/16" deep. (We wrapped masking tape around our drill bit to make sure we drilled all holes to the same depth.) See the Dowel Joint drawing for reference.

5 Glue, dowel, and clamp each frame assembly. Check for square, and make sure that each assembly clamps flat. Wipe off the excess glue with a damp cloth, or wait until it forms a tough skin and remove it with a chisel.

6 Sand each frame (front and back) smooth. Next, rout a 1/2" rabbet 1/4" deep along the *back* inside edge of each frame opening for accepting the oak plywood panels later. Square the round-routed corners with a chisel.

Note: *Normally when selecting oak-veneer plywood, you want the veneer joint lines to be as inconspicuous as possible. But, for a more antique bookmatched appearance, lay out your plywood panels so at the center of each is a plywood-veneer joint line. See the Cutting Diagram and Frame Assembly drawing for reference.*

7 Measure the rabbeted openings, and then lay out and cut the 1/4" oak plywood panels (H, I) to fit. Set the panels aside for now.

Now, prepare the frames for assembly

1 Attach an auxiliary rip fence to your tablesaw fence. Now, fit your tablesaw with a dado blade.

2 Cut a 1/2" groove 1/4" deep 1 1/4" from the bottom edge of the front, back, and side frames.

3 Cut the plywood bottom panel (J) to size. With the bottom panel in place, dry-clamp (no glue) the frame assemblies together. Check the fit. Trim if necessary. Do not glue and clamp the assemblies together just yet.

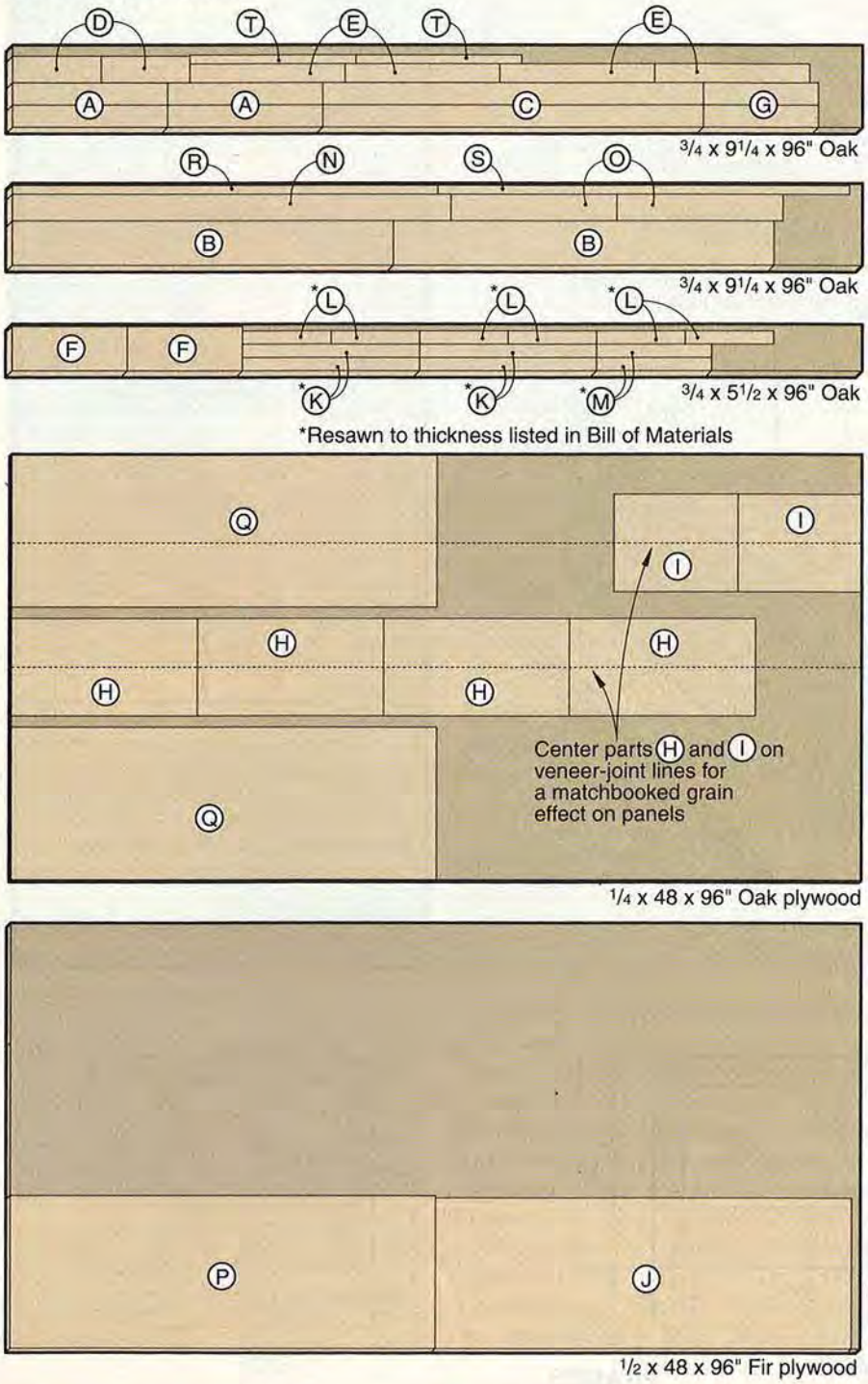
4 Glue the plywood panels into the frames' rabbeted openings.

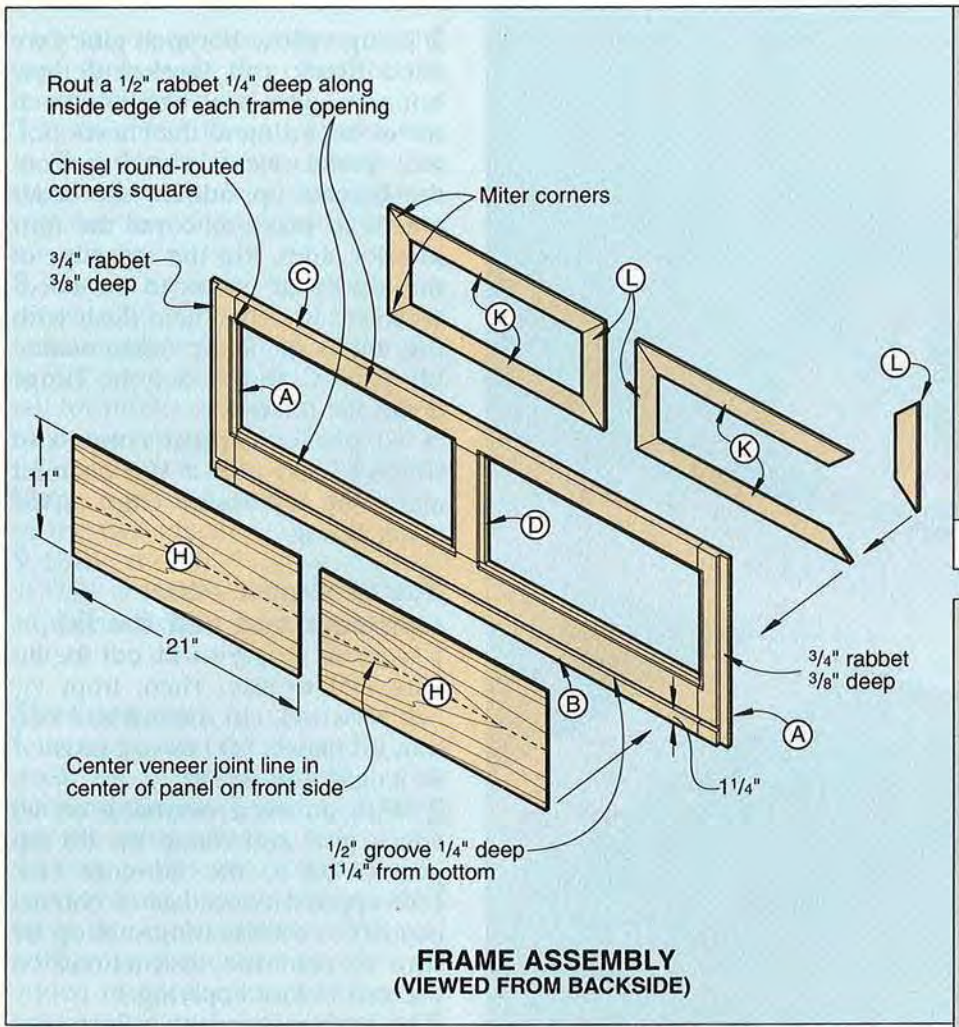
Machine and add the trim for the plywood panels

1 Cut two pieces of 3/4" oak to 1 1/2" wide by 8' long. This will give you enough stock for trim pieces K, L, and M.

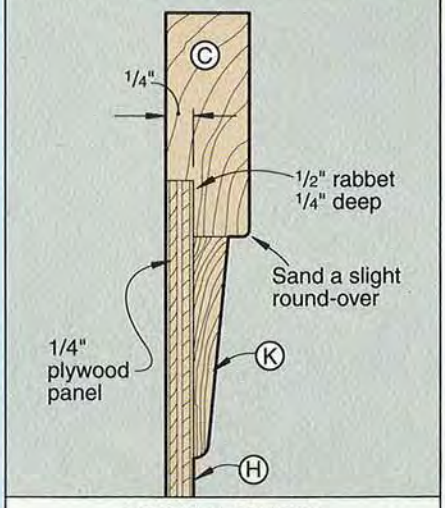
2 Tilt your tablesaw blade 10° from vertical where shown in Step 1 of the three-step drawing at *right*. Using a feather board and feather-board support clamped to

CUTTING DIAGRAM

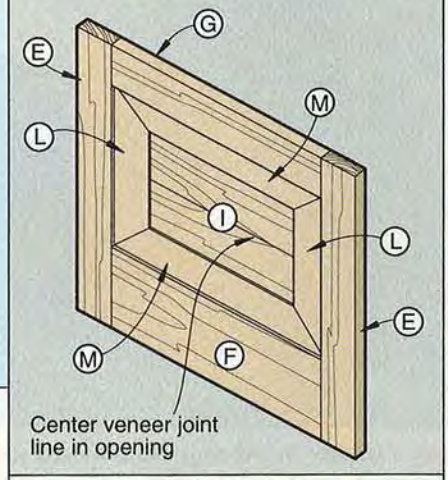




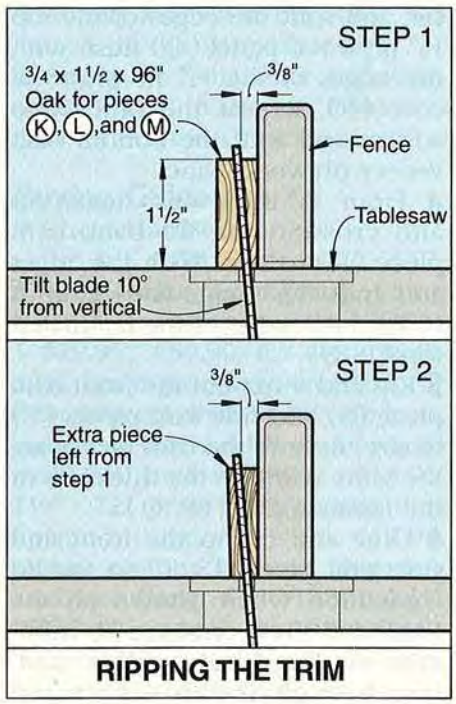
FRAME ASSEMBLY
(VIEWED FROM BACKSIDE)



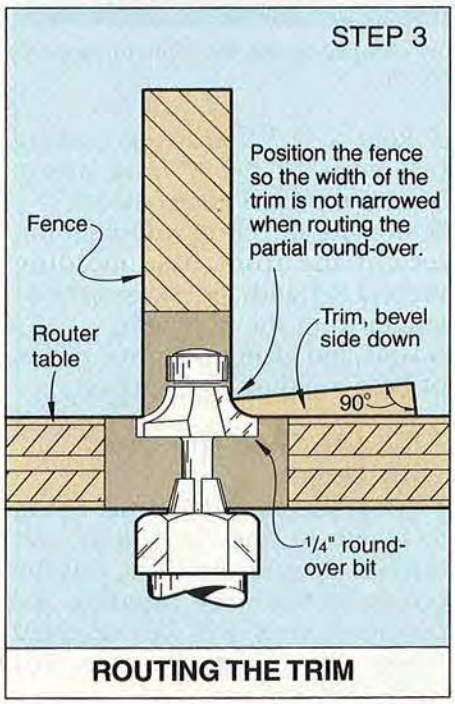
RABBET DETAIL



SIDE FRAMES



RIPPING THE TRIM


STEP 3
Position the fence so the width of the trim is not narrowed when routing the partial round-over.
Fence
Router table
Trim, bevel side down
90°
1/4" round-over bit

ROUTING THE TRIM

your saw table, bevel-rip each 8′-long piece where shown in Step 1 at *left* and in the photo on the *following page.*

3 Follow Step 2 of the drawing to re-rip the two thicker pieces.

4 Sand or plane the sawn surface of each of the four lineal trim strips to remove the saw marks. (Using a push block, we did this on the jointer, shaving off about 1/32″ of stock.) Finish-sand the beveled surface of each.

5 Using Step 3 of the drawing for reference, rout a partial round-over along the narrow edge of each 8′ trim piece where shown.

Continued

BLANKET CHEST

Use a feather board and feather-board support clamped to the saw table to support the stock when bevel-ripping the oak trim pieces.

6 Miter-cut the trim pieces (K, L, M) to length. Check for a tight fit at the miter joints. Glue them in place over the plywood panels where shown on the Exploded View drawing. Remove excess glue with a damp cloth. (We used masking tape to hold the pieces in place while the glue dried.)

It's time to join the frames and add the base molding

1 Glue and clamp the four frame assemblies and bottom panel (J) together. Check for square, and wipe off excess glue.

2 To form the oak base moldings (N, O), cut a piece of ¾"-thick stock to 3" wide by 8' long.

3 Rout a 5/32" Roman ogee along one edge of the 8'-long piece. Sand the routed edge smooth.

4 Measure the chest, and then miter-cut the front base molding piece (N) and the sides (O) to length from the 8' length.

5 Glue and clamp the three pieces of base molding to the chest.

And now, line the chest with cedar

1 Cut pieces of cedar closet lining to length to line the bottom and interior sides of the chest. Cut the pieces so that once installed, the butt-joint lines will be staggered where shown on the Exploded View drawing.

2 Using yellow hot-melt glue (we used Black and Decker yellow hot-melt glue for wood) attach the closet lining to the chest's bottom panel. Next, working from the bottom up, adhere the cedar pieces in place to cover the four interior sides. Rip the top edge of the top cedar pieces to the needed width to make them flush with the top edge of the frame assembly parts C and G. See the Hinge detail for reference.

3 To prevent splintering (and slivers) later, rout a 3/16" chamfer along the top inside edge of the cedar lining.

You're almost done: construct and add the lid

1 From ½" fir plywood, cut the lid core (P) to size. Then, from ¼" oak plywood, cut the top and bottom lid panels (Q) to size plus ½" in length and width.

2 With an even overhang on all edges, glue and clamp the lid top panel (Q) to the lid core (P). (We applied two coats of contact cement to each mating surface. Be sure to read the instructions on the can before applying.)

3 Fit your router with a flush-trim bit, and rout the edges of the top ¼" plywood panel (Q) flush with the edges of the ½" fir plywood core (P). Repeat the process to adhere and rout the bottom oak-veneer plywood panel.

4 From ¾"-thick oak stock, rip and crosscut the lid back trim piece (R) to size. With the edges and ends flush, glue and clamp it to the back edge of the laminated top (P, Q).

5 Rip and miter-cut the front trim piece (S) and side trim pieces (T) to size. Be sure the trim pieces are the same width as the thickness of the laminated lid (P, Q).

6 Glue and clamp the front and side trim pieces (S, T) to the lid lamination where shown on the Exploded View drawing. To minimize sanding—and possibly sanding through the thin plywood

veneer—keep the edges of the trim flush with the edges of the laminated plywood lid.

7 Rout a 5⁄32" Roman ogee along the front and side trim pieces. See the Lamination detail accompanying the Exploded View drawing for reference.

8 Use a hacksaw to crosscut a piece of 1½" continuous hinge (commonly called piano hinge) to 48" long. Using the Hinge detail for reference, mount the hinge to the rear top rail (C) and rear lid trim piece (R), centering the hinge over the mating joint line of the two pieces.

9 Using the Lid Support drawing at *right* for reference, mount a lid support at each interior rear corner of the chest where shown.

Finishing up

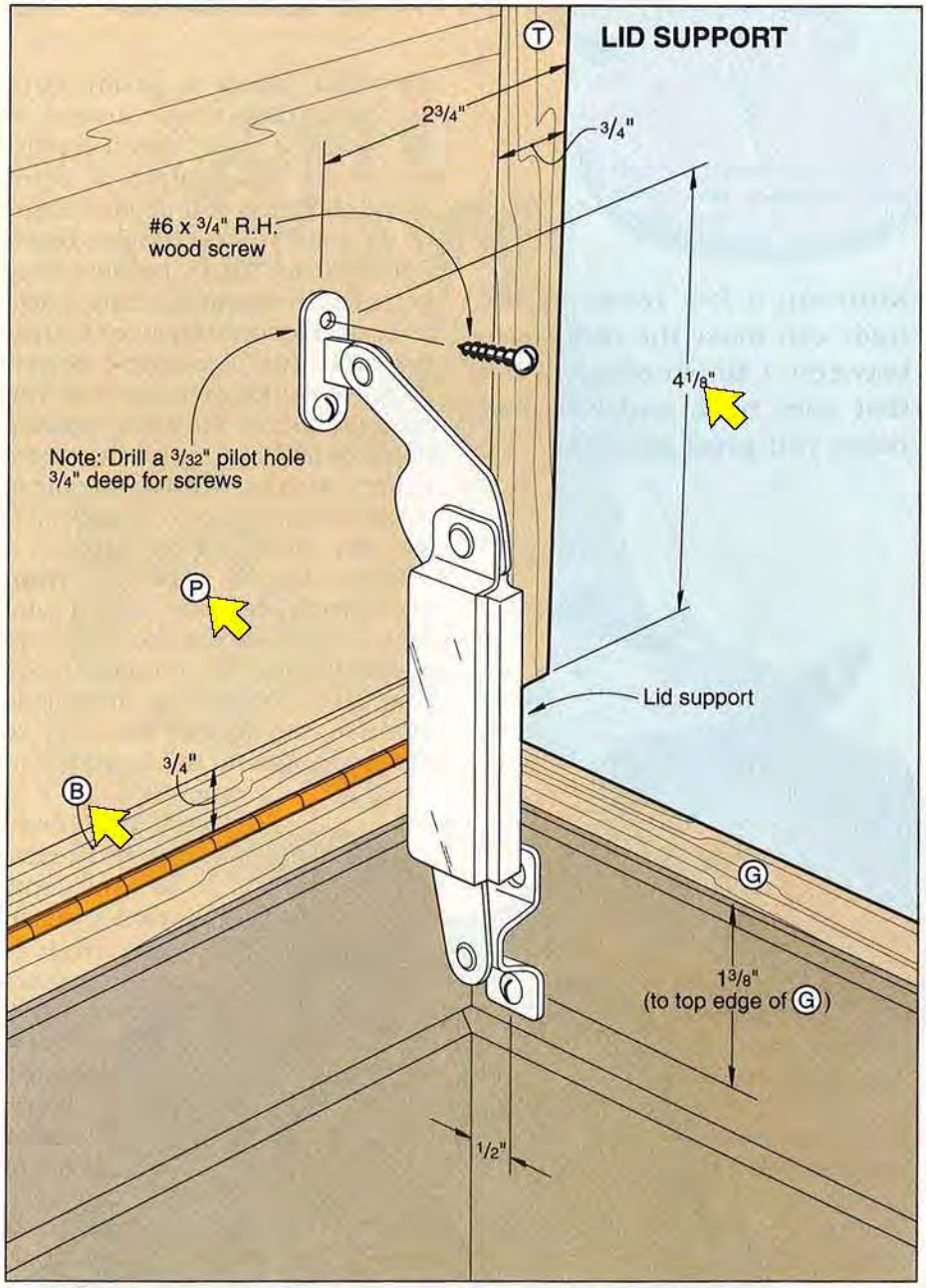
1 Remove the lid supports and mask the continuous hinge. Finish-sand the chest, and then mask off the cedar lining. Now, stain the oak pieces and apply the finish. (We used satin polyurethane. Since hot-melt adhesive will not adhere to a finished surface, we added the cedar lining before we stained and sealed the chest.) Do not apply a finish to the cedar. Re-attach the lid supports.

2 Apply a ½"-diameter self-adhesive felt disk to the top front corners (A) of the chest.

Buying Guide

• Chest Hardware.

Ogee bit with fillet, #820-452, $26.95. Cedar closet lining, 16 sq. ft. per package, #801-621, @$29.95, $59.90 for two packages (two packages needed for this project). Pair of lid supports, right and left hand (one of each) #100-030 and #100-031, $13.90. 1½"×72" brass-finish continuous (piano) hinge, #813-476, $12.95. Prices do not include shipping and handling. Call 1/800-645-9292 to order. Woodworker's Supply, Inc., 1108 N. Glenn Road, Casper, WY, 82601.



Aromatic cedar—the might of the myth

Eastern red cedar, also called red juniper, and aromatic red cedar, belongs to the juniper family of conifers. Because of the belief that it repels moths and other insects, woodworkers have traditionally used it for chest and closet linings. But, according to Lonnie Williams of the USDA Forest Service at the Southern Forest Experiment Station in Gulfport, Mississippi, the ability of the wood's aroma to repel insects has never been scientifically proven. However, the chemical extractives (not the aroma) in the heartwood proves fatal to termites.

To "revive" the aroma in your project's interior, sand the bare cedar every few years with 150-grit sandpaper. Applying a finish to the cedar prevents the fragrant smell.

Designed and written by Marlen Kemmet Photographs: John Hetherington Illustrations: Kim Downing

8 TIME-TESTED

Knowing a few tricks of the trade can make the difference between a finish-removal job that goes bust, and one that reaps you great rewards.

Print this article

1 Make safety a prime concern. Despite the advent of so-called "safe" finish removers in the past couple of years, most refinishers still depend largely on methylene chloride-based formulations. That's because they need the most quick-acting, effective, and economical chemical available. But, using these powerful solvents does require that you carefully follow the safety precautions spelled out on product containers, such as wearing chemical-resistant gloves and goggles. It also pays to do the following:

- **Use a fan to expel air from your work area,** and open a window on the side of the room opposite the fan to provide cross-ventilation. Vapors of methylene chloride are heavier than air, so place your fan on the floor, not in a window.
- **Take frequent breaks.** If you experience dizziness, drowsiness, an inability to concentrate, or blurred vision, then you've overexposed yourself to the fumes.
- **Methylene chloride will irritate your skin,** so keep a bucket of soapy water on hand in case you accidentally come in contact with the chemical. These finish removers contain a wax for slowing evaporation; the soap cuts through the wax so the water can flush away the methylene chloride from your skin.

Don't jeopardize your health by inhaling finish-remover fumes.

2 Proper application saves you headaches down the road. It doesn't pay to skimp when applying finish removers, so lay down a thick coating in accordance with the product's instructions. Lay the remover on with an old nylon brush, and apply it in one direction only—don't go back over the remover with your brush to even it out. Restroking the chemical will disturb the wax skin that holds in the methylene chloride.

Never allow the finish remover to dry out, and be sure to do your project in manageable sections. Whatever surface you work on, cover the entire area with remover for even coloration. If you strip half of a tabletop one day, and

STRATEGIES for removing wood finishes

strip the other half another day, you may wind up with slightly different colors on the two halves, and a third color where the two applications overlapped.

If a drip of remover accidentally lands on an adjoining area, wipe it up immediately. Otherwise, the drip may show up as a light or dark area later.

3 Be gentle in your approach. If removing a finish makes you perspire, you're working too hard. Instead, let the finish remover do the hard work by leaving it on the project for all of the manufacturer's recommended time. After this period passes, the finish should slide off the work-

Don't get mad when you notice dark spots; get some oxalic acid.

Never try to forcefully strip a project. Instead, let the finish remover completely soften the coating.

piece with little effort on your part. Multiple layers of finish may require you to leave the finish remover in place for longer periods than recommended. Never force the finish from the surface with a scraper or putty knife—you may scratch or dent the wood fibers.

4 How to get out of tight spots. Okay, so you've stripped the flat surfaces of your project. Now comes the tricky part—getting the finish out of tight areas such as corners, carvings, turnings, and moldings. Here's some sound advice:

- Pry stubborn bits of finishes from intricate areas with sharpened dowels or toothpicks. Never use metal picks; they can damage the wood.
- For help in pulling finishes out of nooks, crannies, and open grain, apply wood shavings soaked in finish remover. After allowing the finish remover to work, brush away the shavings.
- To get finish residue out from tight spots in turnings, use a coarse string or twine, much the way you use dental floss to clean your teeth.

5 How to cope with dark spots in oak surfaces. When water comes in contact with the naturally occurring tannic acid in oak over a long period of time, it results in a dark spot on the surface of the wood. These dark spots often pop up as crescent marks on tabletops where a wet glass or vase once stood. Sometimes, the spots appear where iron hardware contacted the surface.

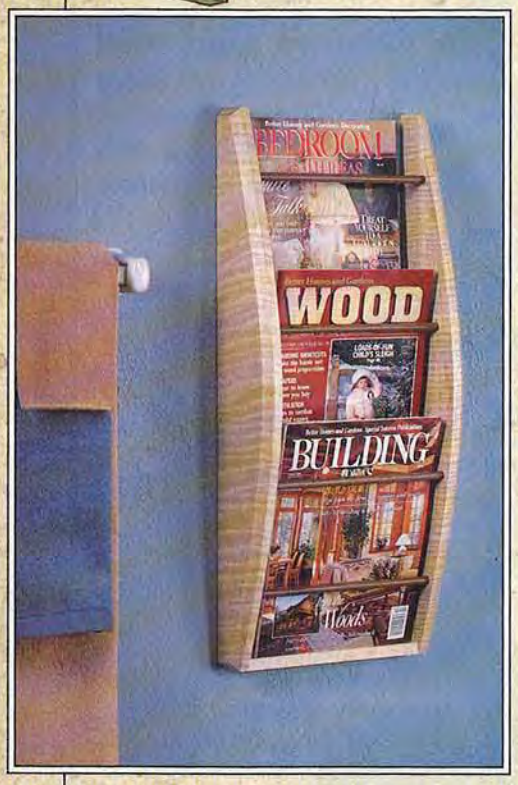
If sanding doesn't remove these marks, treat the entire surface with a solution of 3 tablespoons of oxalic-acid crystals in 8 ounces of water. For a mailorder source of oxalic acid, see the Buying Guide *below*. The acid solution will pull the dark stains from the wood grain. Next, you must neutralize the surface with a solution of 1 teaspoon of baking soda in 8 ounces of water.

Buying Guide

- **Oxalic acid.** A 10-pound box of crystals, $19.95, or a 5-pound box for $12.95 (prices do not include shipping). Minuteman, P.O. Box 8, Waterloo, WI 53594. Call 800/733-1776.

More helpful hints on page 76.

For your information
ON-WALL READING



You say you're losing valuable tabletop space to stacks of magazines? Then build this handy wall-hung rack. You'll not only have attractive storage within arm's reach, but you'll be able to spot issues instantly, without rummaging through a tottering mound of magazines and newspapers.

Print this article

You'll need *both ¾"- and ½"-thick stock for this project. Plane or resaw thinner stock from ¾" material. The magazine rack's simple lines make a marvelous showcase for wood grain, so select eye-catching patterns for the best effect. (We chose curly maple.)*

Rip and crosscut two pieces of ¾" stock to 4×25" for the sides (A). Clamp them flat on your bench, edge to edge. Lay out the ⅜" holes for the walnut rods and the ¼" holes for the dowels where shown on the Side Layout drawing. Mark the top and back edges.

Set the depth gauge on your drill press to 7/16", and then drill the ⅜" holes in the sides with a brad-point bit. Switch to a ¼" bit, and change the depth gauge to 9/16" to drill the dowel holes. Bond the drilled faces together with double-faced tape, aligning the top and back edges.

Set up your table-mounted router with a 45° chamfering bit, and adjust it to cut ⅜" deep. Rout the outside face (the one without drilled holes) of each side along the top, bottom, and curved front.

From ½"-thick stock, rip and crosscut three 1×9" pieces (B) and two 1¼×9" pieces (C). Refer to the Side Layout drawing, and glue two of the B parts together at a right angle. Glue the remaining part B to a part C where shown. Set the ends and edges flush. When dry, drill the ¼" dowel holes 9/16" deep where shown on the ends of parts B and C.

Cut six ⅜"-diameter dowels to 9¾" long. Sand a slight chamfer on each end to ease assembly. Assemble the magazine rack with dowels and woodworker's glue. Square the rack by laying it face-down and measuring both diagonals across the back; equal lengths indicate a square rack.

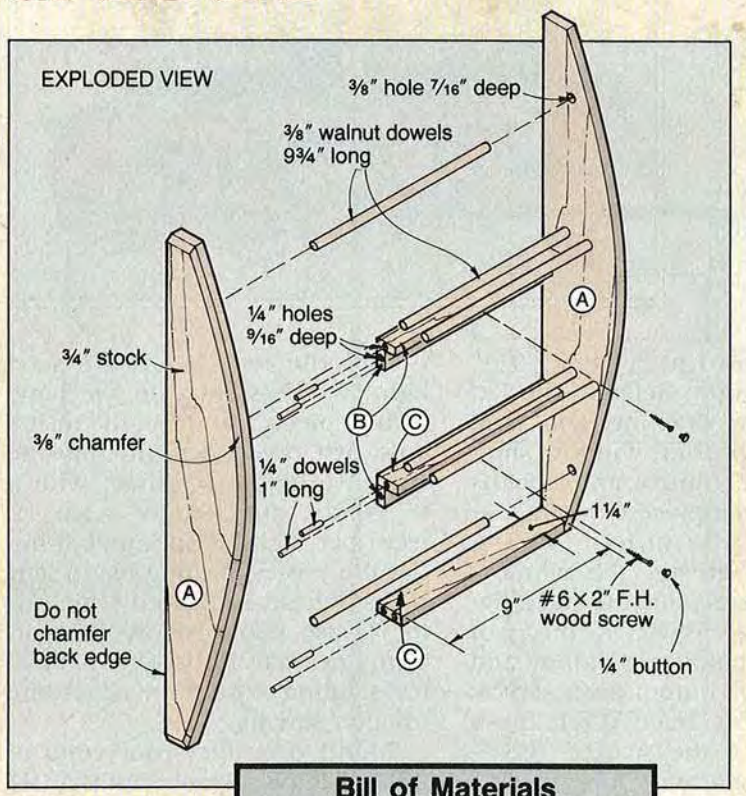
Make two photocopies of the full-sized half-pattern for the side, and join them into a full-sized side pattern. Trace it onto your stock, with the straight edge along the back edge of the stock. Bandsaw slightly outside the line, and then sand down to it. Separate the pieces, using a wooden wedge, if necessary.

Clamp until the glue dries. Then, drill a 9/64" mounting hole centered on each of the two shelf supports where shown on the Exploded View drawing. Counterbore each ⅜" deep with a ¼" bit.

Sand all surfaces, and apply a clear finish. (We used satin polyurethane varnish.) When dry, hang on the wall or door with #6 wood screws, hollow-wall anchors, or other hardware appropriate to your mounting location. Place a ¼" hardwood button in each mounting hole to cover the screw head.

Project Design: James R. Downing Illustrations: Kim Downing; Bill Zaun Photograph: John Hetherington

RACK

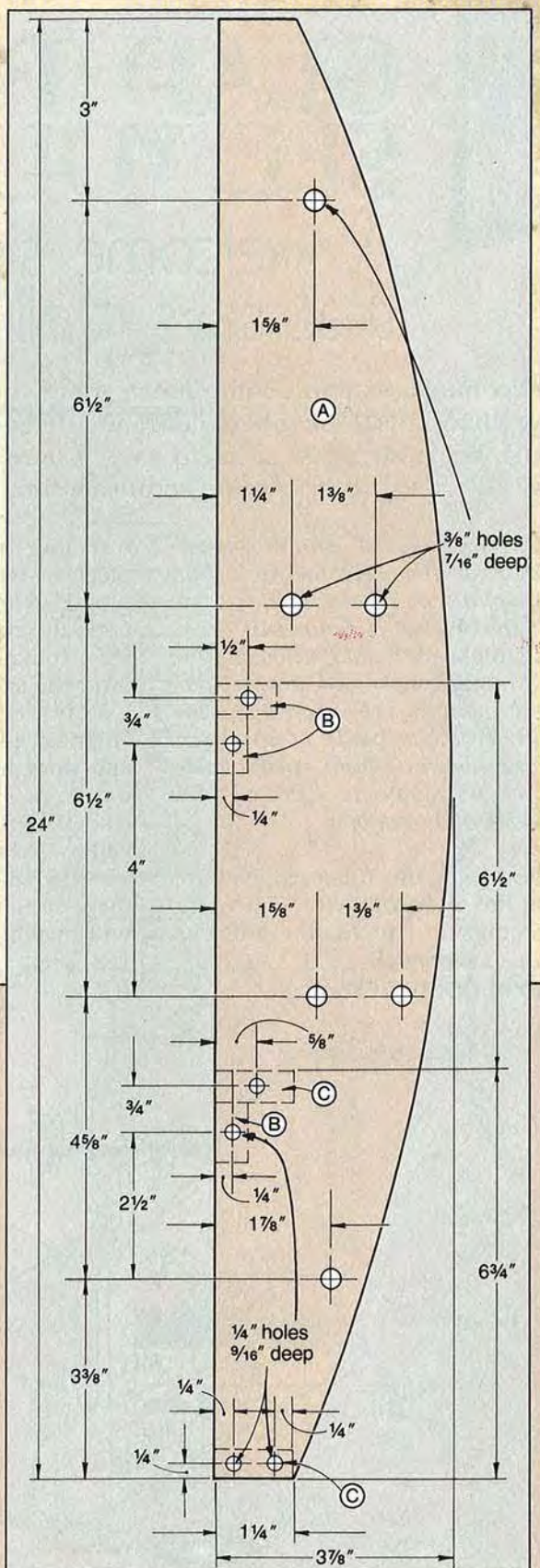


Bill of Materials

Part	Finished Size T	W	L	Matl.	Qty.
A side	3/4"	3 7/8"	24"	M	2
B shelf, supports	1/2"	1"	9"	M	3
C shelf	1/2"	1 1/4"	9"	M	2

Material Key: M-maple

FULL-SIZED PATTERN
(SIDE HALF-PATTERN)



SIDE LAYOUT (RIGHT SIDE SHOWN)

Print this article

GLAD TO SEE YOU!

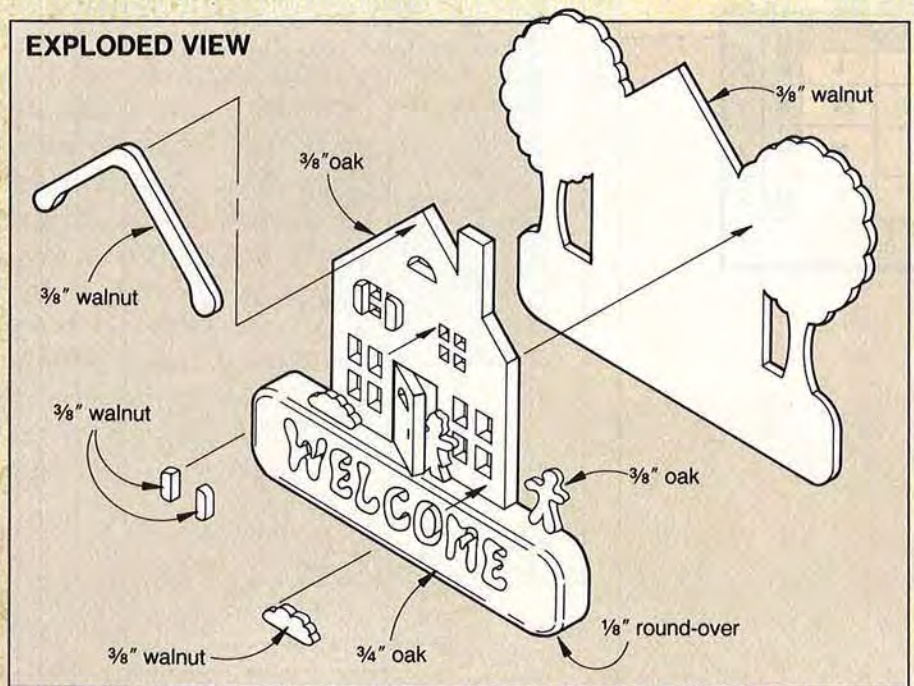
A welcome sign that says it all

Welcome signs don't come much more inviting than this. The open door and friendly folks beckoning just seem to say, "Come on in!" It's also a call to some scrollsaw fun.

You'll need *⅜- and ¾"-thick stock for the welcome sign. You can plane or resaw thicker stock to make the ⅜" material. Contrasting woods add interest. (We cut ours from ¾" oak and ⅜" oak and walnut.) Use a fine, plain-end scrollsaw blade. If your machine doesn't accept such blades, check with your tool dealer for a blade-holder adapter.*

Photocopy the full-sized patterns on the *opposite page.* Trace the red outside pattern line and cut-out line onto a ⅜ × 8½ × 9½" piece of walnut. Refer to the Exploded View drawing, and then trace the roof trim, window shutters, female figure, and shrubs onto the same piece of walnut.

Transfer the house outline (marked in green), the window and door lines, and the male figure to a ⅜ × 5½ × 5½" piece of oak. Trace the plaque outline and yellow letters onto a piece of oak ¾ × 2½ × 8½". Trace carefully so the edges of the stacked pieces will match after cutting.



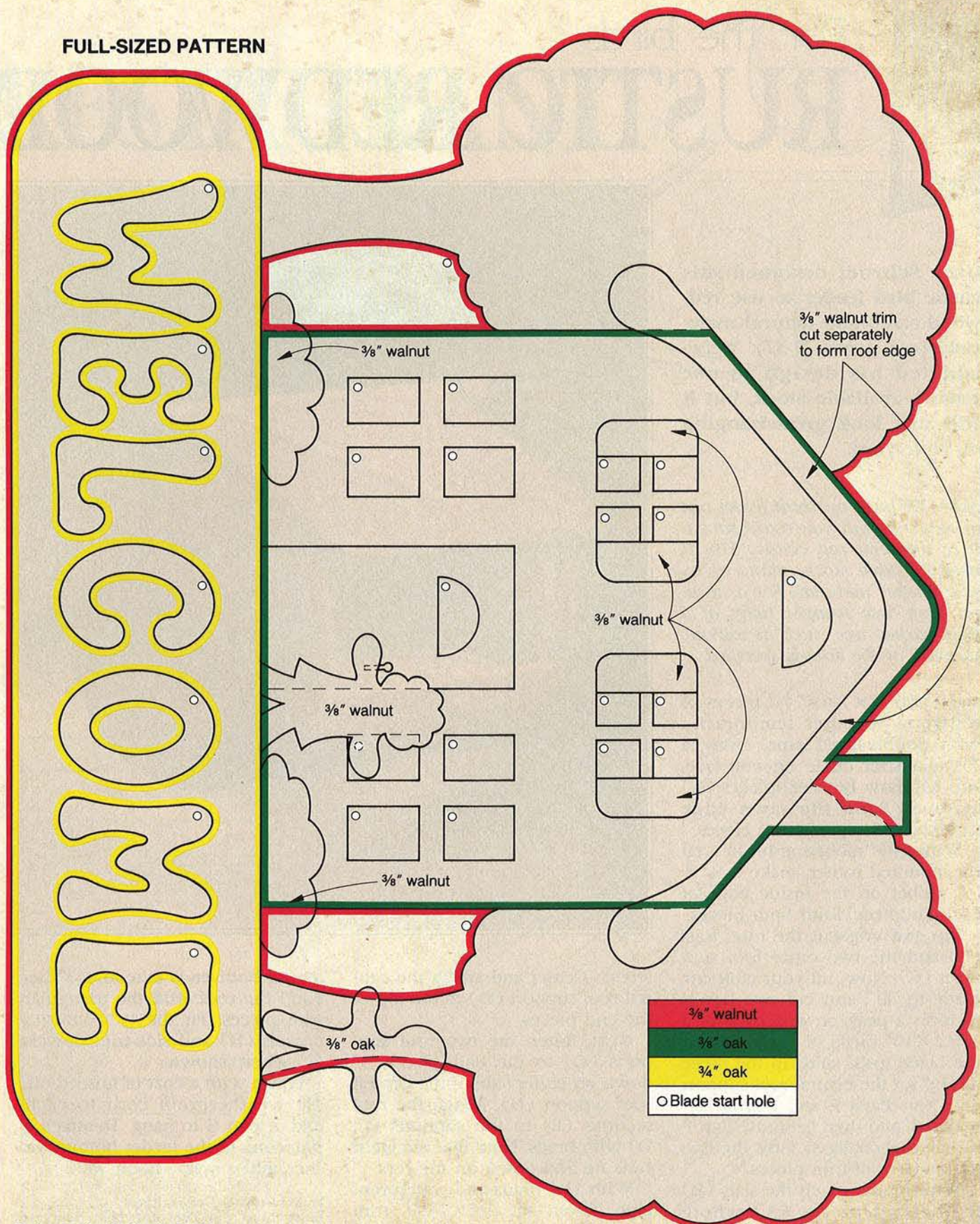
Drill the two 1/16"-blade start holes where shown on the large walnut piece. Complete the inside cuts first, and then the outside cut. (We used a scrollsaw with a #7 blade, .043 × .016" with 12 teeth per inch.) Continue cutting out the pieces, drilling blade start holes where indicated. Cut out the house door. Follow the pattern lines carefully—you'll have less sanding to do if the edges line up after sawing.

Round over the front edge of the ¾"-thick plaque with a ⅛" round-over bit in a table-mounted router. Sand slight round-overs on the front edge of the trees, the house sides, the chimney, the window shutters, and the roof trim. Do the same on both sides of the shrubs and people. Sand the front surfaces smooth.

Glue the plaque and house to the large backpiece with woodworker's glue. Next, glue on the roof trim. When the glue has dried, sand the outside edges of the joined pieces, using a disc or belt sander. Hand-sand where the machine won't reach.

Apply a little glue to the left edge of the door, and place it into the opening so it's standing slightly ajar. Then, glue the shrubs, shutters, and people into place. Spray on clear lacquer or polyurethane varnish.

FULL-SIZED PATTERN



Project Design: Harlequin Crafts
Photograph: John Hetherington
Illustrations: Jamie Downing; Mike Henry

For the birds

Print this article

RUSTIC REDWOOD

Gary Schrodt designed this rustic bird feeder to use redwood scrap and natural materials (see *pages 27-31*). We've adapted his design to use readily available stock, but it still will look great hanging in your yard.

***Note:** We built our bird feeder out of redwood, but you could substitute western red cedar. You'll need ¼"-thick stock; plane or resaw thicker material. For a natural look, use straight twigs of a tight-barked tree, such as willow, in place of the dowels specified.*

Stack two ¾×7¾×7¾" pieces of redwood together temporarily with double-faced tape. Draw a 7¾"-diameter circle on one face, and bandsaw both endpieces (A) at once. Sand the sawn edge smooth, and separate the pieces.

With a ⅜" rabbeting bit in a table-mounted router, make a ⅜"×½" rabbet on the inside edge of each endpiece. Sand both pieces.

Rip and crosscut the nine slats (B) and the two outer roof supports (C). Now, tilt your tablesaw blade to 30°, and cut two bevels to form a peak on one edge of a ¾×2×10" piece of stock. Return the blade to 0°, and rip the piece to 1¼" for the central roof support (D). Cut Parts E and F from ¼" material, and then bandsaw Part F in half diagonally to form the two triangular roof-trim pieces.

With brads, attach the slats (B) to the end pieces (A) where shown to form the bottom of the feeder. Center and attach the central roof support (D) to the top of the end pieces.

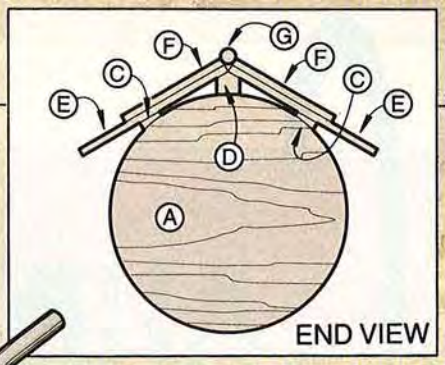
Next, fasten the two roof supports (C) to the end pieces, 3" down on either side of the central roof support (D). Attach the roof sections (E) to the supports (C, D) with brads. Note that the grain runs up and down on the roof.

With 1¼" brads and waterproof glue, fasten the ½"×13½" trim dowel (G) to the peak of the roof, letting both ends extend 1⅛" beyond the roof. Add the triangular trim pieces. Fit the ¼" roof-trim dowels (H) and side-trim dowels (I) where shown.

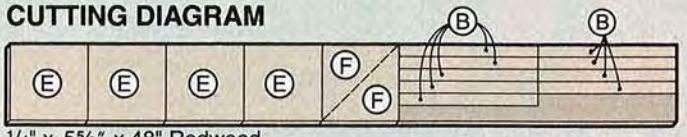
Finish with a coat of linseed oil. Tie weatherproof cord to each end of part G to hang. To attach a pinecone to the feeder bottom for suet, add a screw hook.

Project Design©: Gary Schrodt
Illustrations: Kim Downing; Mike Henry
Photograph: Wm. Hopkins

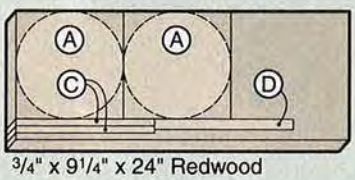
RESTAURANT



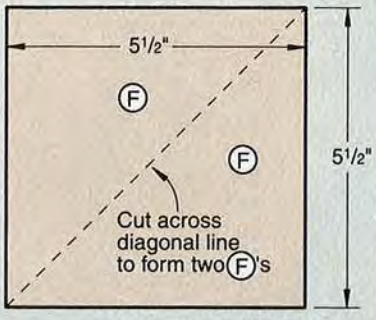
CUTTING DIAGRAM

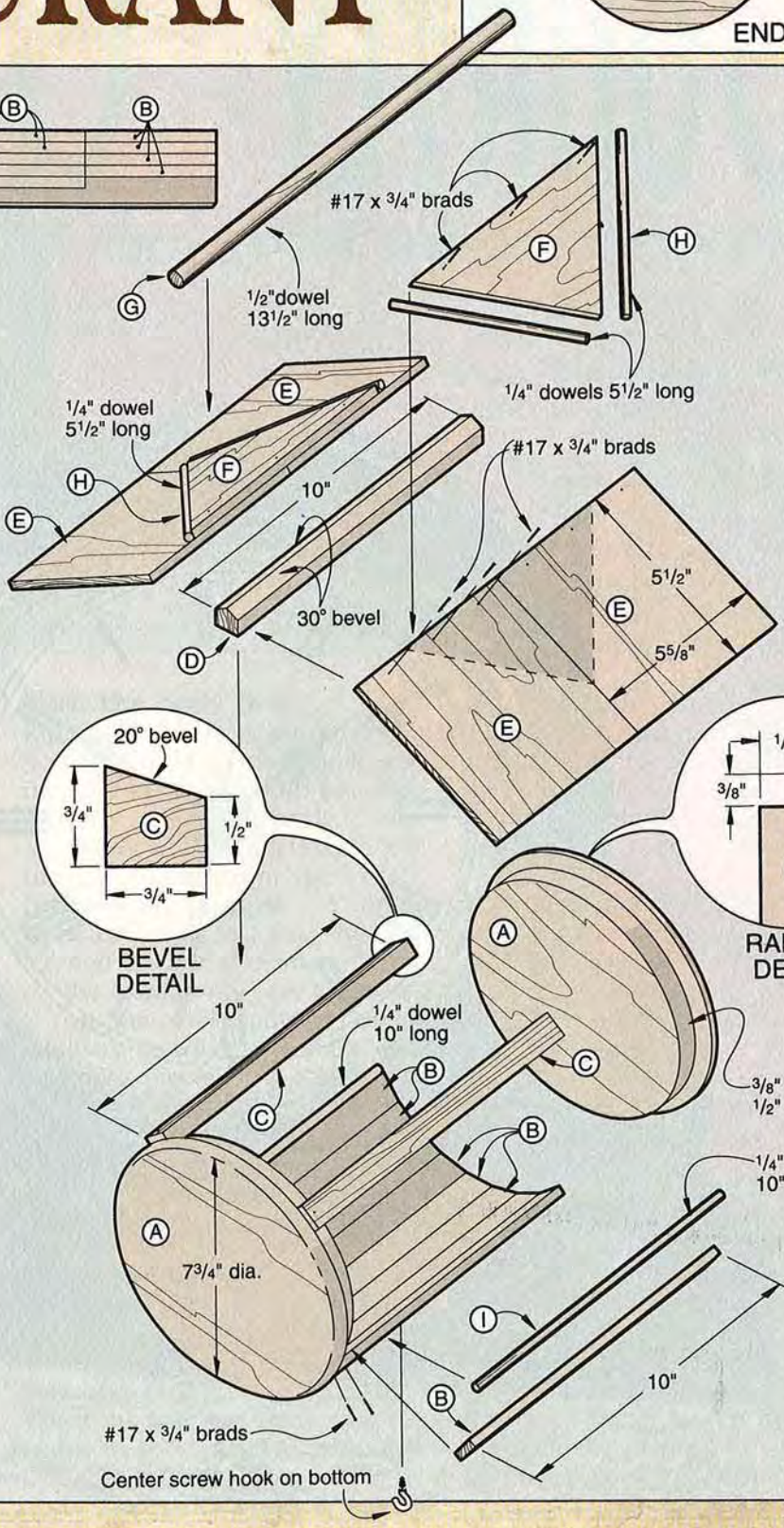


1/4" x 5⅝" x 48" Redwood



3/4" x 9¼" x 24" Redwood





Bill of Materials

Part		Finished Size T	W	L	Matl.	Qty.
A	end pieces	¾"	7¾"	7¾"	R	2
B	slats	¼"	⅞"	10"	R	9
C	outer roof support	¾"	¾"	10"	R	2
D*	central roof support	¾"	1¼"	10"	R	1
E	roof section	¼"	5⅝"	5½"	R	4
F	roof trim	¼"	5½"	5½"	R	1
G	trim dowel	½" dia.		13½"	B	1
H*	trim dowel	¼" dia.		5½"	B	4
I	trim dowel	¼" dia.		10"	B	2

*Cut slightly oversized, and trim to finished size in accordance with how-to instructions.

Material Key: R-redwood, B-birch

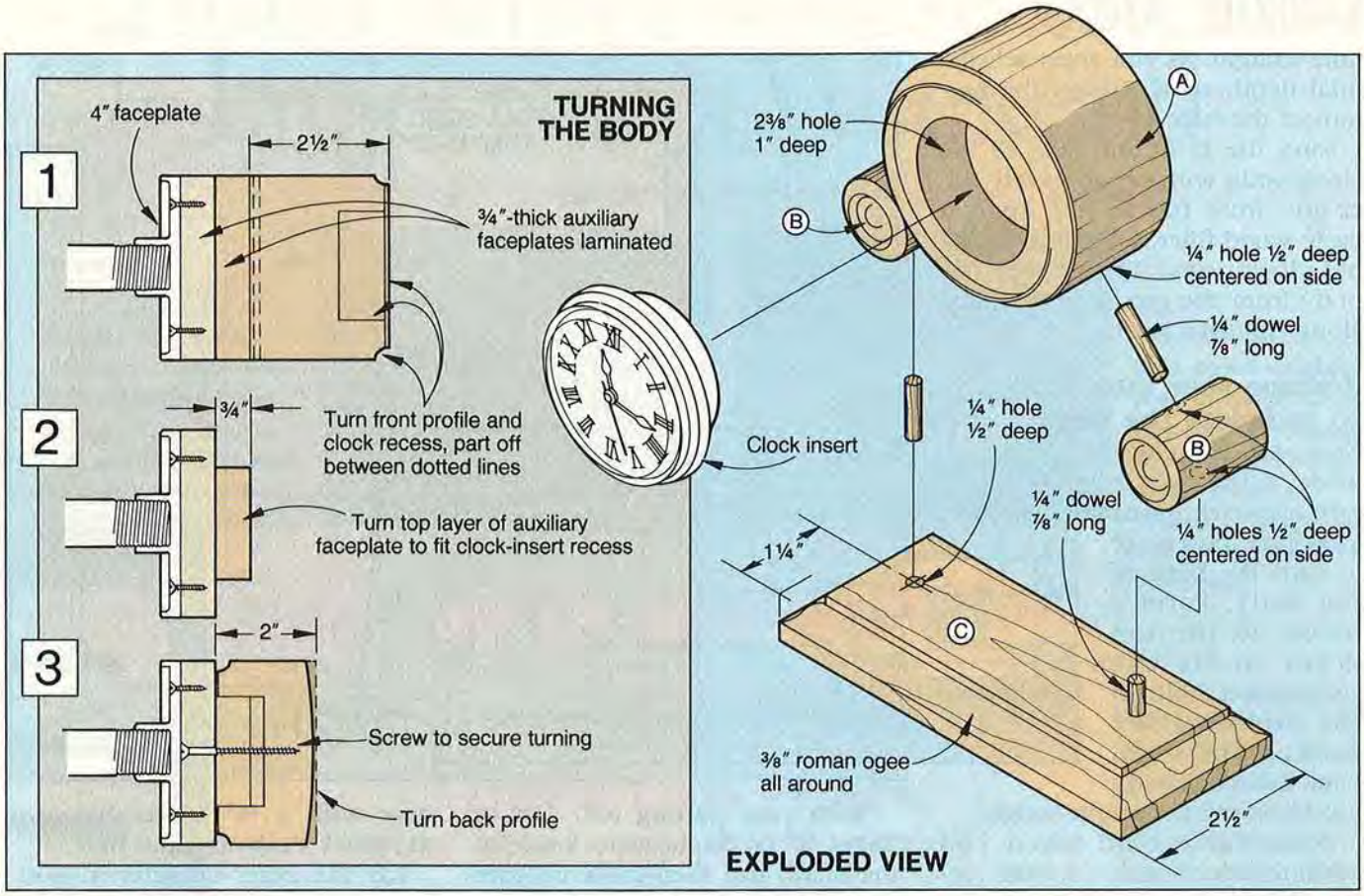
Supplies: #17 × ¾" and #17 × 1¼" brads, screw hook, nylon cord, linseed oil.

COURTLY CLOCK

Old-world charm from your lathe

Print this article

Combine three walnut turnings, a base, and a quartz-clock insert to create this timepiece that looks as if it came from an English manor. It's sure to bring charm to any room.



WE USED THESE TOOLS AND SUPPLIES:

Lathe tools and equipment

- Screw drive center
- 13/64" gouge
- ¼" gouge
- ½" gouge
- ½" skew

Materials

- 3×6×6" walnut
- ¾×2½×6" walnut

Lathe speeds

Roughing: 700–900 rpm
Finish cutting and sanding: 1200–1500 rpm

Buying Guide

Clock insert. Quartz clock insert, 3⅝" dia., with Roman numerals, ivory dial, and brass bezel, item no. 71158, $12 ppd. in the U.S. Write to Klockit, Box 636, Lake Geneva, WI 53147, or call 800/KLOCKIT.

Turn the body first

Rip a 1½" strip from one edge of a 3×6×6" walnut bowl blank, and then cut the same width from one end to make a blank about 3×4⅜×4⅜". Rip a 1½×1½×6" turning square from the cutoff. Bandsaw the blank to 2½" thick. Draw diagonals to locate the center, and draw a 4"-diameter circle on the blank with your compass.

Turn the clock body (A) on an auxiliary faceplate. To make one, glue two pieces of ¾×4½×4½" scrapwood together face to face (or use 1½"-thick material), and then attach the laminated stock to a 3" or 4" faceplate with wood screws. (Don't drive the screws into the top layer; see Turning The Body drawing, Part 1, *above.*) Turn to 4" diameter, with a flat, true face.

Glue the faceplate to the blank, aligning it within the circle. When the glue has dried, turn the blank to a 4"-diameter cylinder. Develop the front-edge profile by turning to the diameters shown on the full-sized pattern, *page 72*. Transfer the template portion of the pattern to stiff cardboard, such as a file card, to use as a guide. Turn the 1/16" recess on the face, leaving a lip of about 1/16".

Make a place for the clock

Measure the mounting diameter of your clock insert. (The Klockit insert we used requires a 2⅜"-diameter hole.) Make a mark on the clock body face 1 3/16" from the center. With the lathe running at a slow speed, bring a pencil to the mark and draw a circle for the mounting hole.

Cut in about ¼" just inside the circle with your parting tool to define the edge. Hollow out the mounting hole with your gouge, working from the edge inward as you would with a bowl.

After you've gone about ¼" deep, turn off the lathe and try the clock insert for fit. Continue checking the clock fit as you turn, keeping the sides of the mounting

Continued

Courtly Clock

hole straight. As you approach the final depth of 1", flatten the bottom of the hole.

Sand the front and side of the clock body with progressively finer grits from 100 to 400. Apply a paste wood filler, following the label directions. Then, part the body from the auxiliary faceplate along the glue joint.

Reshape your faceplate to complete the body

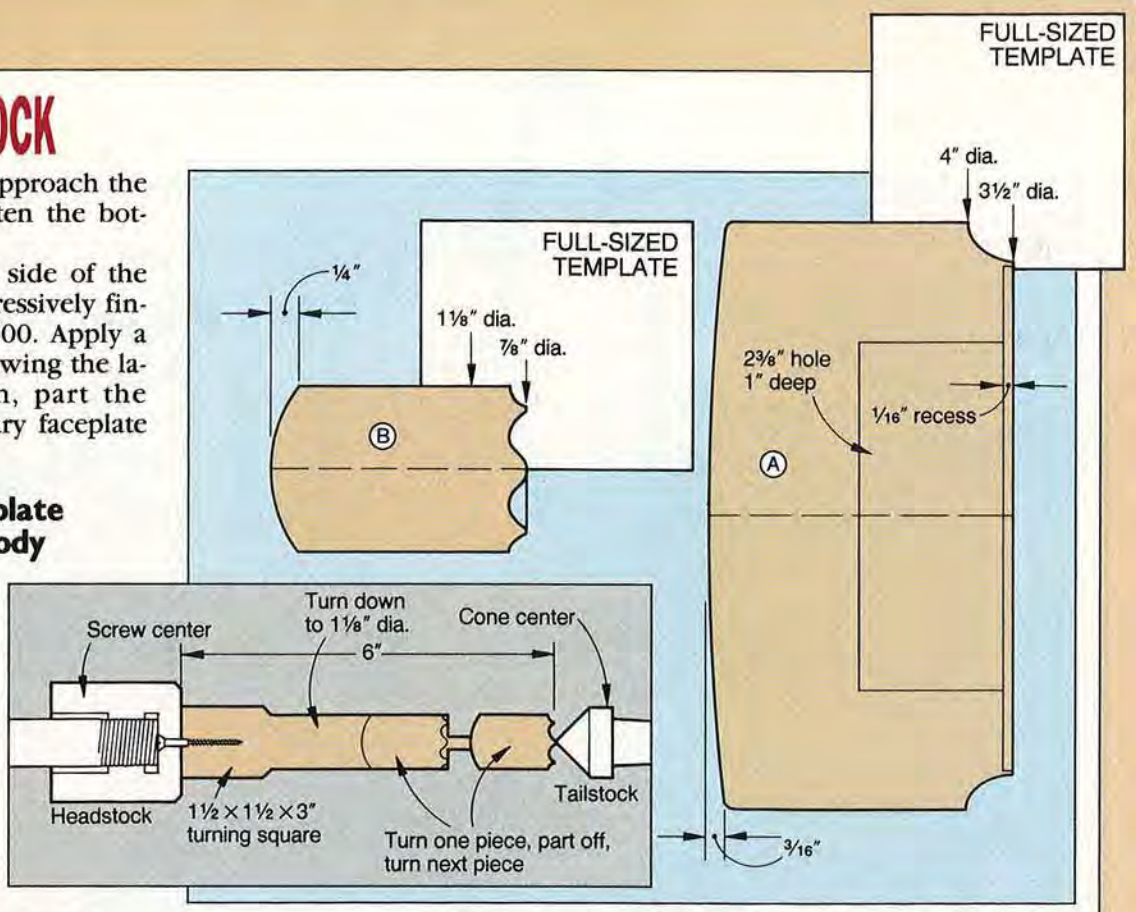
Now, set the clock body aside while you rework your auxiliary faceplate to turn the back of the body. Form a tenon on the top layer to fit the clock-insert hole in the body. (See Turning The Body, Part 2.) The body must fit over the tenon snugly.

For a surer hold when you place the clock body over the tenon, drive a screw through the auxiliary faceplate and into the clock body (see Turning The Body drawing, Part 3). With your gouge, form the curve for the back as shown on the full-sized pattern. Bring the clock body to about 2" overall thickness, measuring from the faceplate to the center of the back. Sand and apply paste sealer as before.

Now, turn the support cylinders

Saw the 1½" turning square you cut earlier into two equal lengths to make the support cylinders (B). Locate and mark centers, and mount one piece on a screw center. Transfer the full-sized template to light cardboard.

With the tailstock in place, round the square down to 1⅛" diameter and partially form one support (see the drawing *above*). Slide the tailstock back to complete the end profile with a small gouge (we used the 13/64" gouge). Next, mark the turning 1¾" from the profiled end.



With your parting tool, cut in about ⅜" on the headstock side of the mark, and then make another mark 1½" from the profiled end. Form the curve on the back of the support cylinder with the small gouge, cutting the waste end to a cone to provide necessary working space.

Sand and seal the cylinder as you did the body, and then remove it from the lathe. Saw off the waste, and then sand and seal the curved end. Repeat the process to make the second cylinder.

Rout the base, and assemble the clock

With the three turnings completed, make the clock base (C). Rout both ends and edges on one side of a ¾ × 2½ × 6" piece of walnut with a ⅜" roman ogee bit in a table-mounted router. Sand and seal as with the turnings.

Now, drill a ¼" hole ½" deep centered on the side of each cylinder (B). Drill *one* hole centered on the side of the clock body (A). With a ¼" walnut dowel ⅞" long, dry assemble one cylinder and the body as shown in the exploded view drawing. Place them on the base with a ⅛" spacer between the clock body and the base.

Lay the other cylinder in position against the body and base, with the dowel hole toward the body. Then, mark the location for the hole in the body. (We used a dowel center.) Drill the hole for the dowel in the clock body, centered on the side.

Dry-assemble both cylinders to the body with walnut dowels. Holding the three turnings together, scuff the assembly from side to side on a piece of sandpaper laid abrasive side up on your bench.

Drill a ¼" dowel hole centered on the resulting flat bottom of each cylinder. Glue the cylinders to the clock body with walnut dowels. With dowel centers or measurements, mark and drill the dowel holes on the base.

Apply a clear finish to the assembled turnings and the base. (We used Minwax Woodsheen Rubbing Oil Clear Finish.) Glue the assembled turnings to the base, and then install the clock insert with its battery.

Project Design: Larry Johnston
Illustrations: Kim Downing; Mike Henry
Photograph: John Hetherington

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The woodworker's survival guide (*Continued*)

An upscale alternative to the Incra Jig

After producing the article dealing with the Incra Jig on *page 32*, we came across the IPM-1 Universal Incremental Positioning Machine by JoinTECH (see photo *right*). It has 10½" of capacity and helps you do the same things as the Incra Jig. But, it has more ease-of-use features as well as all-metal construction. The price? It's about $220 (with a 27" fence, push fixture, and templates as standard equipment). You also can buy an IPM-2 with 16½" capacity and the same accessories for about $250.

In our tests, we found the IPM-1 to be a well-made and velvety-smooth machine. Features such as a hairline cursor, pushbutton positioning, and calibrated thumbwheel make quick and repeatable positioning a snap. Our advice: Buy this machine if you plan to get a great deal of use from it.

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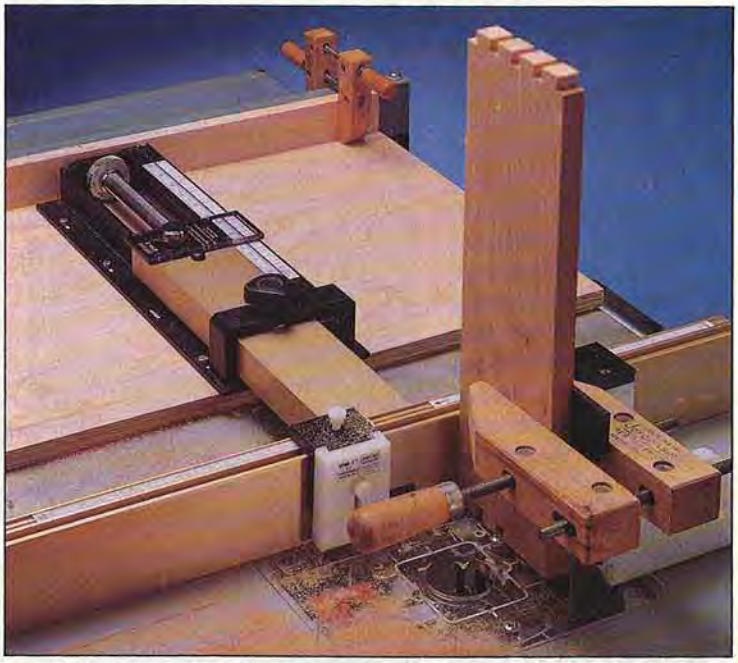

The IPM-1 has metal construction, speedy operation, more standard accessories, and a higher price than the Incra Jig.

Written by Bill Krier with Jim Downing Photographs: Hopkins Associates Illustrations: Kim Downing

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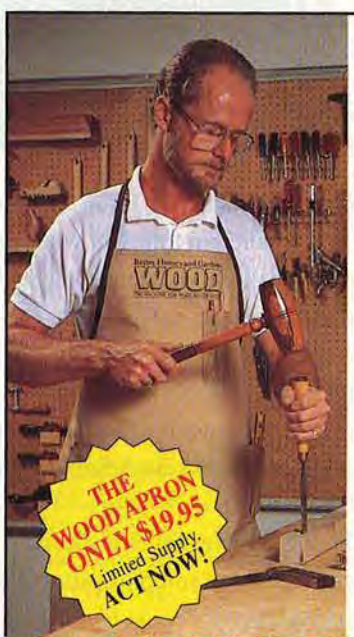

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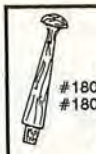

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8 TIME-TESTED STRATEGIES for removing wood finishes

Continued from page 63

6 Stubborn finishes: wrap 'em up. Especially tough or thick finishes may not soften before the finish remover dries out. At these times, give the remover a helping hand by placing kitchen-variety plastic wrapping over the finish remover. This may be a little messy, but it seals in the methylene-chloride vapors and gives them time to work.

7 Put the heat on painted surfaces. Nothing removes thick layers of paint faster than a heat gun. This tool works well on large, flat surfaces such as doors or tabletops. (We do not recommend heat guns for use on fine furniture or delicate workpieces.) For best results, follow these pointers:

- Don't burn your hand or the workpiece. Burns in wood require lots of sanding for removal, so keep the heat gun moving at a steady rate to prevent scorching.
- As the heat gun softens the paint, quickly scrape away the residue with a putty knife before the finish cools and hardens. As with chemical strippers, never force the paint from the surface, and round the corners of the putty knife to prevent scratches.
- Work outdoors or in an indoor area that's well-ventilated. Wear a respirator to protect you from the harmful fumes.
- After you remove most of the paint with a heat gun, follow with a chemical remover to thoroughly cleanse the surface.

8 Residue: It all comes out in the wash. After you remove the bulk of the remover/finish sludge, the residue that remains on the surface will dry in a hurry. Don't let it. If the residue dries, you may have to put more finish remover on the surface. So, quickly wash the area with either 0000 steel wool or a fine Scotch Brite pad soaked in lacquer thinner. Then, clean the surface with a rag. To get out the last traces of residue, wipe the surface with a rag soaked in lacquer thinner.

Manufacturers of some products recommend that you clean up the residue with water. We've found that water leaves a fuzzy surface that adds to your sanding work. However, with dibasic ester (DBE)-based finish removers, such as 3M's Safest Stripper, you have no choice. You must clean up these with water. Since DBE solutions contain water, never use steel wool with these products (or you may get rust stains).

Written by Bill Krier Technical consultants: Dan Sakach; Jerry TerHark Illustrations: Lee Gatzke; Jim Stevenson Photograph: Hopkins Associates

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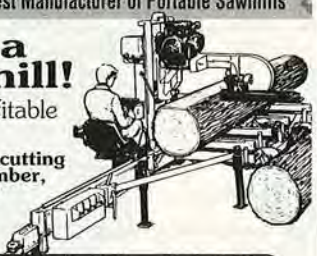

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A dust-collector explosion?

Your IDEA SHOP in the September issue was very interesting—full of good ideas. Your dust collector especially interested me because I also used a separate room and insulated the walls and ceiling for noise. I made one addition, however, since I was concerned about the spark from the induction motor on my 1-hp Grizzly dust collector during start-up and stop. Isn't it possible for a spark to ignite the fine dust accumulated in the enclosed room? To preclude this possibility, I built a sealed, airtight box around the motor and fan to isolate it from dust. I also checked to see that the motor did not get too hot in this "sealed" condition, but the cooling effect of the blower took care of any problems.

—R.A. Rippe, Eatonville, Wis.

We asked Grizzly service technician, Bob Anderson, if he thought this was a good idea, R.A. Rather than building a box, Bob says, "I'd concentrate on eliminating dust. If the dust removal system works properly, there shouldn't be much dust circulating in the air. The dust should be contained internally within the system. If too much dust did occur around the dust collector," he adds, "the fan in the motor blows air through it so fast dust can't concentrate to cause an explosion. That's part of the design." Based on this, R.A., you should reconsider your box idea.

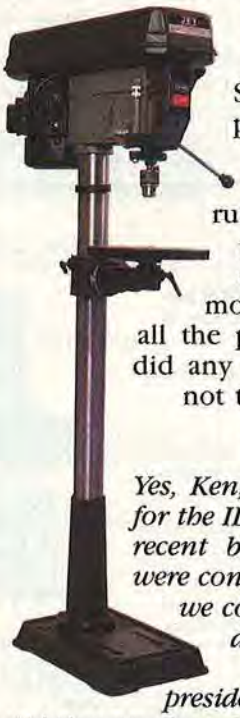
No radial-arm saw? What gives?

Thanks for another great issue. I noticed you didn't include a radial-arm saw in the new shop. Any particular reason?

—Ed Phillips, Whittier, Calif.

Ed, for all intents and purposes, we have replaced the radial-arm saw in our shops with the sliding compound-mitersaw. Here's why. First, we feel that it performs all of the angle-, miter-, and crosscutting operations that a radial-arm saw excels at with equal accuracy. Second, it takes up less room. And third, the sliding compound-mitersaw tends to cost less than the radial-arm saw. We leave it up to our tablesaw to accomplish any ripsawing tasks.

Drill is too hot to touch



I was wondering if you compared drill presses before you selected the Jet for your Idea Shop? I ask because I recently purchased a 16-speed drill press (made in Taiwan) with a 1-hp motor. My problem: The motor runs so hot that you cannot put your hand on it. I wrote to the dealer and they told me that the motor was supposed to run hot. Of all the pieces of equipment you tested, did any one run so hot that you could not touch the motor?

—W. Kenneth Dumais, Glendale, Ariz.

Yes, Ken, we did test several drill presses for the IDEA SHOP. All those tested in our recent buymanship article in issue 38 were considered. None of them ran so hot we couldn't put a hand on the motor during operation.

We asked Lou Brickner, a vice president at Delta Machinery, for his opinion on the subject. "If you can't put your hand on it and leave it there, the motor is definitely running too hot," he advises. "This doesn't mean all Taiwanese motors are bad, though. But, we advise buying only those which are UL approved. That UL label is the most critical thing you can look for in a motor. They almost always have better wiring, and higher grades of metal. A motor without a UL label can have anything stamped on it while UL motors must pass a test before they can be rated for horsepower and operating temperature."

Continued on page 80

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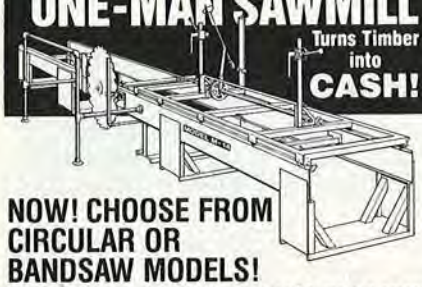

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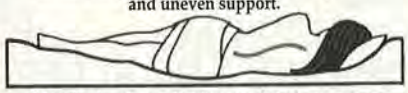

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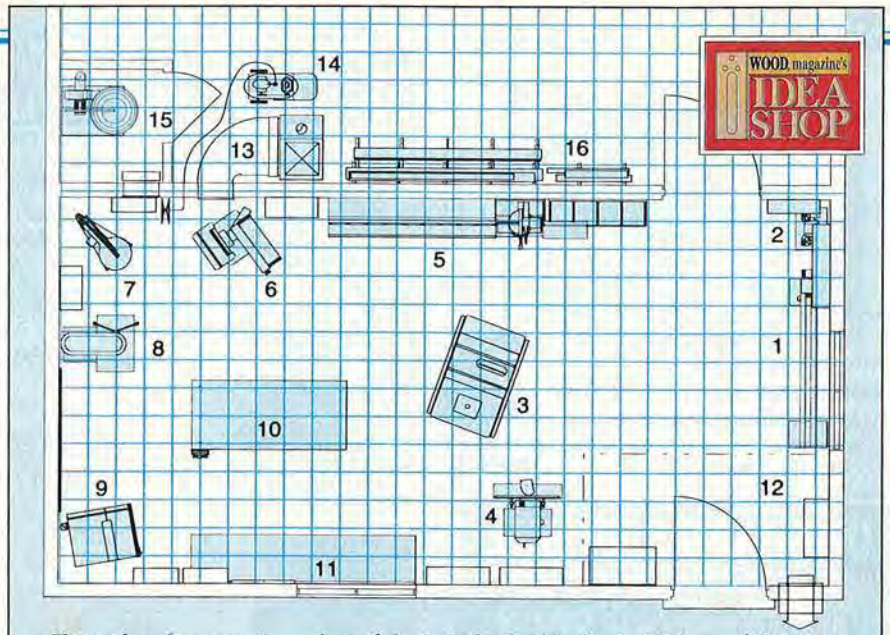
ASK WOOD

Continued from page 78

Can you give IDEA SHOP specs?

Seldom, if ever, do I write a magazine and tell them how I feel about it. I especially liked your IDEA SHOP in the September 1992 issue. I found it ironic that it's almost the same exact size as the shop I plan to build. I do have some questions, though, about the size and actual dimensions of your shop. First, could you provide a detailed, scaled, floor layout of the entire workshop area? Also, can you tell me the overall size of the building and ceiling height? And, is the lumber storage area heated?

—Clayton Murphy, Belle Mead, N.J.



Floor plan (ea. square = 1 sq. ft.). 1. Lathe 2. Grinder 3. Tablesaw 4. Jointer-/planer 5. Mitersaw 6. Belt sander 7. Scrollsaw 8. Drill press 9. Bandsaw 10. Assembly workbench 11. Stationary workbench 12. Finishing area 13. Heating-/cooling unit 14. Compressor 15. Dust collector 16. Lumber/sheet-goods storage.

Lots of good questions, Clayton. To start with, the IDEA SHOP building measures 28x36' and includes a two-car garage and the 14×28' shop. Its ceiling is 8'.

Also, as you can see, we are providing you and all of our readers with a scaled drawing of the floor layout. This should give a better idea of how we arranged the shop area. Finally, no, we don't heat the lumber-storage area. However, a single register on the furnace wall takes the chill off the garage area when needed.

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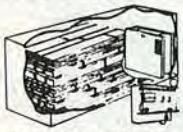

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Continued from page 47

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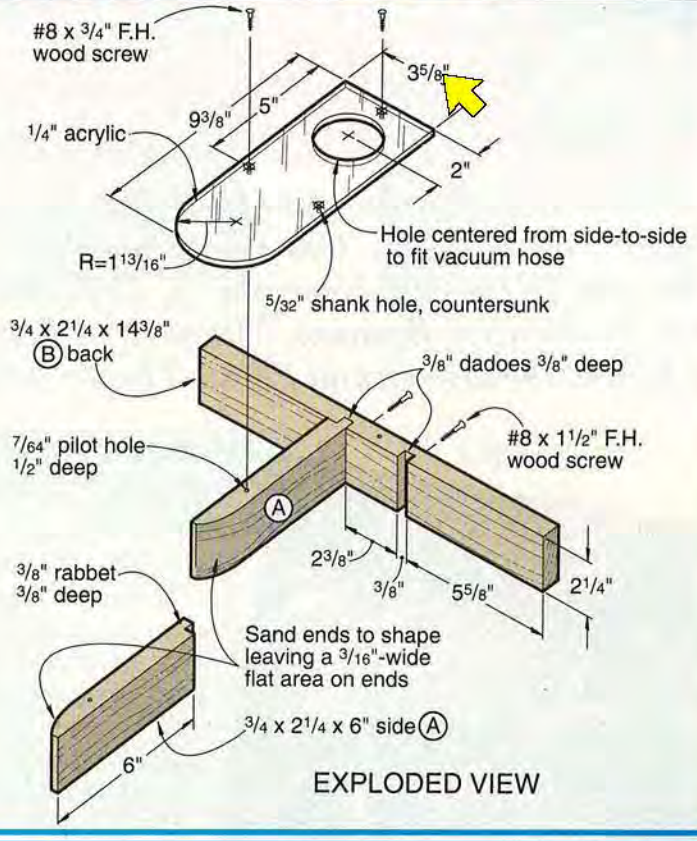

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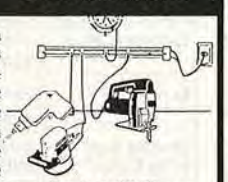

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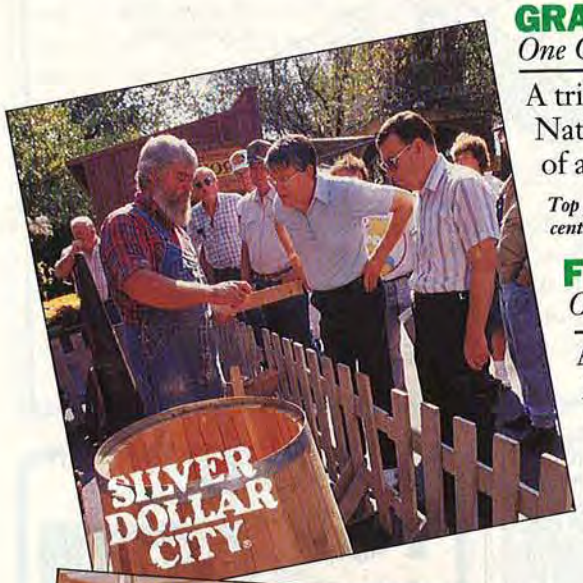
WOOD® MAGAZINE ANNOUNCES:

1993 Build-A-Toy™ Contest

Entry Deadline: February 1, 1993

Don't miss this opportunity to participate in our Fifth Annual contest to benefit kids through Toys-For-Tots. Our successful 1992 CRAFTED FOR JOY exhibit was held September 16 through November 1, 1992 during the National Crafts Festival, at Silver Dollar City, Branson, Missouri. A Benefit Auction of the award-winning toys was held at the new Grand Palace Theater December 6, 1992.



GRAND PRIZE:

One Grand Prize open to original designs only for all skill levels.

A trip for a family of four to Silver Dollar City during the 1993 National Crafts Festival. Prize includes meals, lodging and the price of admission for 3 days/2 nights. *(Transportation not included)*

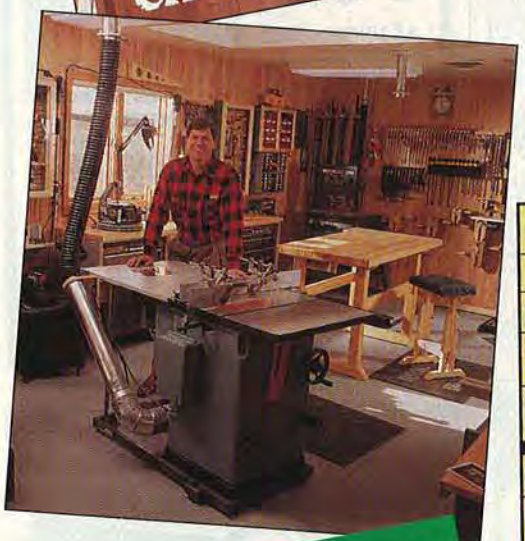
Top photo: Silver Dollar City Theme Park: The Home of American Craftsmanship themed in a turn of the century crafts village. Plus, you'll find shops, rides, restaurants and fun!

FIRST PRIZE:

One First Prize open to original and existing designs for all skill levels.

A trip to the WOOD magazine's IDEA SHOP™ in Des Moines. Meet the editors and spend a few days learning some great woodworking tips. Price includes meals and lodging for 3 days/2 nights. *(Transportation not included)*

Six design prizes valued at over $8,500 will be awarded for toys built from original designs.



Bottom Photo: IDEA SHOP: Editor-In-Chief Larry Clayton in the IDEA SHOP. Editors chose over 70 manufacturers to donate tools and other products for the shop.

Special citation prizes are open to all woodworkers who send us a toy. There will be fifteen citation prizes valued at over $10,000 awarded.

ADDITIONAL COMPETITION PRIZES AND CATEGORIES

	STUDENT (K-12):	HOME HOBBYIST:	PROFESSIONAL:
DESIGN PRIZES: These 6 categories are open to original designs only.			
Second Prize	Delta: $1,000 in merchandise	Trendlines: $1,500 in merchandise	Eagle America Corp.: $1,500 in merchandise
Third Prize	RBI: $1,500 in merchandise	Delta: $1,500 in merchandise	Atlas Copco Electric Tools Inc.: $1,000 in merchandise
SPECIAL CITATIONS: These 15 categories are open to both original and existing designs.			
Best use of Wood	Constantine: $100 in merchandise	Craftsmans Corner: $1,500 in merchandise	Dremel: $1,500 in merchandise
Best Finish	Behlen: $200 in merchandise	Behlen: $300 in merchandise	Behlen: $500 in merchandise
Greatest Number of Toy Entries	Leichtung: $250 in merchandise	SEARS Craftsman: $500 in merchandise	Econ-Abrasives: $250 in merchandise
Best Transportation Toy (Includes: Trains, Planes, Cars)	Skil: $500 in merchandise	Vermont American: $1,000 in merchandise	American Tool Cos.: Quick-Grip Bar Clamp & Quick-Grip Vise Grip Locking Clamp ($1,000 retail value)
Best Pull Toy	Tool Crib of the North: 3303 ELU Router (retail value: $235)	Meisel Hardware Specialties: $500 in merchandise	Porter Cable: $1,000 in merchandise
Honorable Mention	Ryobi: $200 in merchandise	Ryobi: $300 in merchandise	Ryobi: $500 in merchandise

1992 Build-A-Toy entries being judged by the editors of WOOD Magazine and guest judges.

1991 CRAFTED FOR JOY exhibit: Award-winning toys on display at a children's gallery in Studio City, CA.

Holiday party in California. Over 80 underprivileged children were entertained and given a handcrafted wooden toy from WOOD magazine.

BUILD-A-TOY CONTEST:

We're proud to invite woodworkers of every age and skill level to enter our Fifth Annual *Build-A-Toy*™ Contest. Your toy may be built from original or existing plans.

Build-A-Toy™ is the best way we know of for woodworkers to get the recognition they deserve for great craftsmanship. And many of the toys submitted will be exhibited and auctioned to raise thousands of dollars to purchase toys for children.

1992 CRAFTED FOR JOY EXHIBIT:

Our Crafted for Joy exhibit of award-winning toys designed and built by previous *Build-A-Toy*™ winners was on display during the National Crafts Festival at Silver Dollar City®. Over 300,000 people attended.

BENEFIT AUCTION:

A special auction of the toys took place on December 6, 1992 at the Grand Palace Theater in Branson, Missouri. The money raised will be given to the Toys For Tots program of the U.S. Marine Corps Reserve so that the Marines can buy more toys for more kids. The 1991 benefit auction, which took place in Studio City, CA, raised over $12,000.

ENTER NOW!

Enter our *Build-A-Toy*™ contest now; help promote the wonderful craft of woodworking, have a chance to win some terrific prizes and make a child very happy this holiday season!

A GIFT FROM WOOD:

Each person who enters our toy contest will receive a "Buy One Admission Get One Admission Free" coupon to Silver Dollar City® Theme Park.

Crafted for Joy children's wooden toys

Sign in front of the 1992 WOOD CRAFTED FOR JOY exhibit at Silver Dollar City during the National Crafts Festival. ***Over 300,000 people visited the exhibit.***

1993 RULES

1. Projects must fit into a box no larger than 2' x 2' x 2'. The primary material should be wood, but may incorporate other materials.
2. Please follow Consumer Product Safety Commission guidelines: nontoxic wood finishes only; no parts smaller than 1 1/4" square on toys for children under three years of age; no sharp corners or points; pull strings longer than 12" should not have beads or other attachments that could tangle and form a loop.
3. Entries must be received by February 1, 1993. All entries must be postpaid; collect entries will be refused. Attach an entry label, photocopy of an entry label or a 3-1/2" x 5" card with your name and address to each toy.
4. Woodworkers who build toys from existing plans will be eligible for First Prize and Special Citation prizes only. Woodworkers who build their own original designs will be eligible for all prizes. All entrants will receive a "buy one admission get one admission free" pass to Silver Dollar City (retail value $20.00) within 4-6 weeks of receipt of toy. One coupon per person only, regardless of the number of toys sent in. No purchase necessary.
5. Entry constitutes permission to use winner's name, hometown and photograph for promotional purposes. Employees and family members of Meredith Corporation, their affiliates and subsidiaries are ineligible. Void in Quebec.
6. Winners will be selected and notified by mail on or about April 15, 1993, and will receive the prize directly from the manufacturer/distributor. For a list of winners, send a separate, self-addressed stamped envelope to BUILD-A-TOY, 1912 Grand Avenue, Des Moines, IA 50309-3379.
7. Meredith Corporation will donate all entries or auction money received from entries to the U.S. Marine Corps Reserve Toys-for-Tots program.
8. **For woodworkers who enter their toy as an original design:** Toy must be your own original design. A different approach to an existing toy would qualify. Please do not enter toys with only subtle changes from published patterns.
9. A panel of representatives from the U.S. Marine Corps Reserve, Meredith Corporation and woodworking experts will judge the toys on child's appeal, craftsmanship, originality, and durability. The panel's decision will be final.
10. Professional woodworkers include woodworking teachers and anyone earning income by selling wooden items.
11. Grand and First Prizes do not include transportation.

WOOD® Magazine's 1993 BUILD-A-TOY™ Competition

There is no limit to the number of entries. Please provide the following information for each toy submitted.

My entry is: ❑ Original design* ❑ Built from plans

My skill level is:
❑ Student (K-12) ❑ Home Hobbyist ❑ Professional

*For Original Design entries: I certify that I have designed and built this toy myself. Should my entry win, I agree to cooperate with WOOD Magazine to supply builder's notes and a bill of materials for publication.

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Send toys to: 1993 BUILD-A-TOY, WOOD Magazine, 1912 Grand Avenue, Des Moines, IA 50309-3379

1993 BUILD-A-TOY ENTRY DEADLINE: FEBRUARY 1, 1993.

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43-505	1/2" Bench Router/Shaper	399	279
22-540	12" Bench Top Planer	595	389
36-220	10" Compound Mitre Saw	350	239
28-180	Bench Band Saw	232	167
40-640	20" Bench Scroll Saw	466	319
23-675	NEW 6" Grndr/3x24Belt Sndr	141	105
14-600	Hollow Chisel Mortiser	668	445
46-700	12" Wood Lathe	548	419
34-761	10" Unisaw 1-1/2 HP	1715	1295
	Unisaw has $100 rebate-price is before rebate		
33-990	10" Radial Arm Saw	818	589
37-280	6" Motorized Jointer	488	395
50-179	3/4 HP 2 stage Dust Collector	483	335
70-200	20" Floor Drill Press	1049	815
33-055	8-1/4" Sawbuck comp w/legs	865	579
34-330	8-1/4" Table Saw 13A	343	228
32-100	Station Plate Jointer	645	265
36-040	8-1/4" Compound Mitre Saw	224	165
34-915	30" Unifence	385	239
34-897	50" Delta Unifence	525	285
36-755	10" Tilt Arbor Saw	1264	935
34-444	Contractors Table Saw	850	615
17-900	16-1/2" Floor Drill Press	495	395
40-601	18" Scroll Saw with stand	942	719
22-662	13" Planer complete - 2HP	1499	1169
33-060	NEW "Sidekick" Miter Saw	499	379
14-070	NEW 14" Floor Drill Press	450	325
50-075	Dust Collector/Sweeper 3/4 HP	360	279

The following Delta tools have a $50.00 Rebate! Price shown is before rebate.

28-283	14" Band Saw w/enc. stand	910	725
34-445	34-444 Saw w/30" Unifence	1200	799
37-154	DJ15 6"Jointer w/3/4HPmotor	1420	1079

MILWAUKEE TOOLS

6527	NEW Sawzall with case	299	164
6528	above Sawzall w/wired cord	295	164
6125	NEW 5"Random Orbit Sander	200	119
6126	NEW 6"Random Orbit Sander	205	125
0399-1	12V cordless Drill Kit comp	304	164
0402-1	above Drill w/keyless chuck	309	168
0395-1	9.6V cordless Drill with case	284	158
0224-1	3/8" Drill 4.5 amp magnum	203	114
0234-1	1/2" Drill 4.5A mag 0-850 rpm	223	119
0244-1	1/2" Drill 4.5A mag 0-600 rpm	223	119
0222-1	3/8" Drill 3.5 amp 0-1000 rpm	189	107
0228-1	3/8" Drill 3.5 amp 0-1000 rpm	183	104
0375-1	3/8" close quarter Drill	223	127
0379-1	1/2" close quarter Drill	254	145
6539-1	cdls Screwdriver 190 rpm	127	75
6546-1	cdls Scrwdvr 200 & 400 rpm	138	82
5399	1/2" D-hdle Hammer Drill Kit	319	184
6750-1	Drywall Gun 0-4000 5 amp	162	93
6507	Original SawZall with case	249	135
6014	Orbital Sander 1/2 sheet	214	119
8977	variable temp. Heat Gun	122	75
5397-1	3.8" var. spd Hammer Drill Kit	244	138
5371-1	1/2" var. spd Hammer Drill Kit	335	185
3107-1	1/2" v/spd right angle Drill Kit	370	198
6754-1	Drywall Gun 0-4000 5.4 amp	192	114
3300-1	1/2" var. spd right angle Drill	329	184
5680	Router 2 HP - 12 amp	355	198
0235-1	1/2" Drill w/keyless chuck	223	125
6145	4-1/2" Grinder 10,000 rpm	162	98
6142	6145 with case & accessories	199	129
6749-1	Drywall Gun 0-2500 5.4 amp	224	122
6365	7-1/4" Circular Saw 13 amp	214	120
6366	6365 w/fence & carbide blade	224	125
6368	6365 w/fnce,carb. blde,& cse	244	138
6369	New 7-1/4 Circ saw w/brake	245	149
6377	7-1/4" Worm Drive Saw	324	178
6256	Top Handle Jig Saw	220	135
6490	10" Mitre Saw	444	269

FREUD CARBIDE TIPPED SAW BLADES
5/8" Bore - Industrial Grade

Item	Description	Teeth	List	Sale
LU72M010	Gen Pur. A.T.B.	10" 40	67	37
LU82M010	Cut-off	10" 60	90	49
LU84M011	Comb	10" 50	76	40
LU85M010	Super Cut-off	10" 80	112	58
LM72M010	Ripping	10" 24	66	38
LU73M010	Cut off	10" 60	82	44
LU87M010	Thin Kerf	10" 24	70	38
LU88M010	Thin Kerf	10" 60	86	43
LU98M010	Ultimate	10" 80	125	67

Buy a LU85M010,LM72M010,& LU84MO11 blade set for 134.00 and receive a FREE one year subscription to BHG WOOD Magazine!

TK206	10" Framing	24	38	25
TK303	7-1/4" Finishing	40	37	22
TK306	10" Finishing	40	46	25
TK906	10" Combo	50	52	29
SD306	6" Dado - Carbide		215	109
SD308	8" Dado - Carbide		229	119
F0	1-3/4" x 5/8" Biscuit 1000 Qty		32	29
F10	2-1/8" x 3/4" Biscuit 1000 Qty		32	29
F20	2-3/4" x 1" Biscuit 1000 Qty		34	29
FA	Assorted Biscuits 1000 Qty		34	29
FB100	16 piece Forstner Bit Set		331	174
94-100	5 pc. Router Bit Door System		319	165
FT2000E	3-1/4 HP v/spd Plunge Router		410	209
JS100	Biscuit Jointer with case & FREE G100 Glue System		334	162

MAKITA TOOLS

Model		List	Sale
6070DW	3/8" v/spd Reverse Drill 7.2V	124	74
6071DWK	above Drill w/removable batt	194	109
5090DW	3-3/8" Saw Kit 9.6 volt	250	138
6010SDW	3/8" cordless Drill Kit 7.2V	96	59
DA3000DW	3/8" Angle Drill 7.2 volt	241	136
4390DW	9.6 cordless Recip Saw Kit	234	129
ML900	Incandescent Flashlight 9.6V	Sale	37

6093DW	v/spd Drill w/clutch-complete	261	135
6093DWE	6093DW Drill Kit w/2 batteries	270	139
6093DWL	6093DW Drill Kit w/Flash Lt	299	165
6095DWE	6095DW Drill Kit w/2 batteries	270	139
6011DW	NEW 12V Drill Kit complete	320	168
632007-4	9.6 volt Battery	47	30
632002-4	7.2 volt Battery	39	28

5007NBA	7-1/4" Saw w/electric brake	243	129
5008NBA	8-1/4" Saw w/electric brake	301	163
B04510	1/4 sheet Pad Sander	93	54
9900B	3" x 21" Belt Sander w/bag	283	148
9924DB	3" x 24" Belt Sander w/bag	299	159
4301BV	Orb. var. spd Jig Saw 3.5A	262	142
JR3000V	var. speed Recip Saw w/case	239	129
LS1020	10" Mitre Saw 3.5 amp	571	299
9820-2	Blade Sharpener	394	194
1900BW	3-3/4" Planer with case	221	116
1911B	4-3/8" Planer 7.5 amp	255	139
9207SPC	7" Sander/Polisher	294	154
9514B	4" Disc Grinder 4.6 amp	100	59
3601B	1-3/8 HP Router	261	139
B04550	1/4 sheet Pad Sander w/bag	91	54
DA3000R	3/8" Angle Drill	285	149
2708W	8-1/4" Table Saw	519	269
2711	10" Table Saw with brake	868	485
6404	3/8" Drill Rev. 0-2100 rpm 2 A	105	57
6510LVR	3/8" Drill Rev. 0-1050 rpm	152	79
6820V	0-4000 rpm Drywall Gun 5.2 A	160	89
6013BR	1/2" Drill Rev. 6 amp	263	138
5402A	16" Circular Saw 12 amp	675	345
3612BR	3 HP Plunge Router	347	169
9401	4" x 24" Belt Sander w/bag	343	174
4302C	var. speed Orbital Jig Saw	283	154
5077B	7-1/4" Hypoid Saw	260	138
LS1440	14" Mitre Saw	759	429
LS1030	NEW 10" Mitre Saw	428	215
5007NB	7-1/4" Circular Saw 13 amp	214	114
2012	12" Portable Planer	913	465
LS1011	10" Slide Compound Saw	859	439

SENCO AIR NAILERS

SFN1	Finishing Nailer 1" - 2"	377	275
SFN2	Finish. Nailer 1-1/2" - 2-1/2"	571	395
SN325	Nailer 1-7/8" - 3-1/4"	665	455
SN4	General purpose 2" - 3-1/2"	685	468
SLP20	New Pinner w/cse 5/8" - 1-5/8"399		285
SKS	Stapler 5/8" - 1-1/2"	351	255

BOSTITCH AIR NAILERS

N80S-1	Stick Nailer Super Sale		365
N12B-1	Coil Roofing Nailer	645	405
N60FN-2	Finishing Nailer	625	355
T31	Brad Nailer	270	162
CWC100	1 HP Pancake Compressor	445	295

EXCALIBUR Fences & Tables

TT45R24L9	24" Fence	369	299
TT45R50L12	50" Fence	399	329
EXSLT30	Sliding Table	599	475
EXSLT60	Sliding Table	745	585

SKIL SIZZLERS

77	7-1/4" Worm Drive Saw	230	144
2735-04	12 volt cordless Drill Kit	210	134
2735-04X	2735-04 with keyless chuck	235	137
1605-02	NEW Biscuit Jointer w/case	200	125
7584	NEW 5" Rndm Orbit Sander	160	104
3400	9" Table Saw - Bench Top	250	179
3330	16" Scroll Saw - Bench Top	200	135
3380	8" Drill Press - Bench Top	200	135

PANASONIC CORDLESS

EY6205BC	NEW variable speed 12 volt Drill w/15 minute charger & case	390	169
EY6200B	NEW 2 speed 12 volt Drill D-handle with 15 minute charger	350	178
EY6281BC	NEW variable speed 9.6 volt Drill w/15 minute charger & case	350	168
EY571B	var. speed 9.6 volt Drill Kit	239	128
EY571BC	EY571B with case & 2 batt	275	158
EY6207BC	NEW 12 volt 1/2" Drill w/keyless chuck var. speed w/15 minute charger & case	421	218
EY6205EQK	Same as EY6205BC but battery has 40% more life & 20% more torque	368	198

PASLODE IMPULSE GUNS

IM250	Trimpulse Finish Nailer Kit	849	615
IM325	Impulse Framing Nailer Kit	849	615
402500	Extra Battery	Sale	42.95

HITACHI TOOLS

C7SB	7-1/4" Circular Saw	214	109
C7BD	7-1/4" Circular Saw with brake	230	127
M12V	NEW 3 HP var. speed Router	447	225
TR12	Plunge Router 3 HP	354	174
F1000A	12" Planer/6" Jointer	2835	1535
C10FA	10" Deluxe Mitre Saw	538	274
C12FA	NEW 12" Mitre Saw	632	305
C8FB	8-1/2" Slide Compound Saw	899	445
FREUD LU91M008	1/2" Carb bld 48 t	68	43
C15FB	15" Mitre Saw	745	379
FREUD LU85M015	15"c/blc 108 tooth	180	105

We now stock Hitachi Air Nailers!

DEWALT TOOLS

DW3647	1-1/4" Circ. Saw w/brake 13 A	245	148
DW944K	3/8" 9.6 volt cordless drill kit with 2 batteries	264	155
DW610	1-1/2 HP 2 handle Router	250	138
DW411	1/4 sheet Palm Sander, 1.7 amp	87	54
DW100	3/8" Drill, 4 amp,0-2500 rpm,rev	110	65
DW254	4.5 amp Drywall Gun, 0-2500 rpm, rev	146	89

PORTA NAILER

401	Porta Nailer complete	265	198
501	Face Nailer complete	265	195

WERNER LADDERS

6204	4' Fiberglass	179	65
6205	5' Fiberglass	199	75
6206	6' Fiberglass	215	80

WINTER KIT SPECIALS

9852K	Porter Cable 9852 Drill Kit w/extra batt	185	
9853K	Porter Cable 9853 Drill Kit w/extra batt	185	
7334K	Porter Cable 5" Random Orbit Sander with case & 1 roll 100X & 150X discs	253	155
7335K	Porter Cable 5" var. spd Random Orbit Sndr w/cse & 1 roll 100X & 150X discs	273	165
7336K	Porter Cable 6" var. spd Random Orbit Sndr w/cse & 1 roll 100X & 150X discs	278	174
555K	Porter Cable Plate Biscuit Jointer with case & 1000 assorted biscuits	339	195
JS100K	Freud Jointer w/cs & 1000 biscuits	351	188
1581VSK	Bosch Top Handle Jig Saw with case & 30 Bosch blades	305	182
1582VSK	Bosch CLIC Barrell Grip Jig Saw with case & 30 Bosch blades	305	182
JM100KK	Ryobi Joiner w/1000 biscuits	475	235

BIESMEYER FENCES

B-50	50" Commer. Saw Fence	329	295
T-SQUARE 52	52" Homeshop Fence	249	235
T-SQUARE 40	40" Homeshop Fence	242	209

WEDGE SMART LEVEL

SM-PR2	2 FT Level with sensor	120	88
SM-PR4	4 FT Level with sensor	150	105
SM-PR6	78" Level with sensor	180	139
SERIES200	NEW 2FT Level with sensor		54.95

Msx636 FEIN	Electric Oscillating Triangle Sander Kit	Sale	279
LPN672 PONY	Air Palm Nailer w/glove	Sale	94.99

JORGENSEN ADJUSTABLE HANDSCREWS

Item#	Jaw Length	Open Cap	List	Sale	Box of 6
#0	8"	4-1/2"	19.00	11.89	61.00
#1	10"	6"	21.76	12.89	70.65
#2	12"	8-1/2"	24.95	14.95	80.95
#3	14"	10"	31.61	18.95	104.95
#4	16"	12"	42.30	24.95	143.95

JORGENSEN STYLE 37 2-1/2" Throat 1/4"x3/4"

Item#	Jaw Length	List	Sale	Box of 5
3706	6"	9.86	6.25	34.75
3712	12"	10.92	6.75	37.75
3718	18"	12.05	7.25	40.75
3724	24"	13.16	8.19	43.75
3730	30"	14.70	9.10	49.75
3736	36"	16.05	10.19	55.75

PONY CLAMP FIXTURES

Model		List	Sale	Lots of 12
50	3/4" Black Pipe Clamps	13.61	7.89	84.99
52	1/2" Black Pipe Clamps	11.37	6.50	69.50

BOSCH

1581VS	Top Handle Jig Saw	265	135
1582VSC	NEW CLIC Barrell Jig Saw	265	135
	Bosch Metal Case for above Jig Saws	34	32
	Bosch 30 blade assortment for Jig Saws		26.99
1942	Heat Gun 600° - 900°	111	69
1272D	3" x 24" Belt Sander with bag	329	178
1273D	4" x 24" Belt Sander with bag	345	189
11-212VSR	Bulldog 3/4"SDS Rtry Drill	370	199
1347AK	4-1/2" Grinder w/case & access.	170	108
1348AE	5" Grinder 8.5 amp	195	118
1194VSR	1/2" var. speed Hammer Drill	264	145
1194VSRK	above Hammer Drill w/case.	292	179
1608	5.6 amp Laminate Trimmer	149	84
1609K	Lam Installers Kit with 1609	309	175
1609KX	Deluxe Installers kit	361	198
1601	1 HP Router	184	114
1602	1-1/2 HP Router	215	135
1603	1/2 HP D-handle Router	252	145
1604	1-3/4 HP 2 Handle Router	236	125
1604K	same as above w/cse & acc	287	165
1606	1-3/4 HP D-handle Router	273	158
3258	3-1/4" Planer w/blade guard	239	139
3258K	3258 Planer with steel case	265	154
3270D	3" x 21" Belt Sander with bag	260	145
1273DVS	var. spd 4" x 24" Belt Sander	370	193
1614	NEW 1HP Plunge Router	220	128
1614EVS	NEW 1-1/4HP v/spd Plge Rtr.	255	149
1613	NEW 1-3/4 HP Plunge Router	288	164
1613EVS	NEW 2HP v/sp Plunge Router	320	184
1615	NEW 3 HP, Plunge Router	395	228
1615EVS	NEW 3 HP v/spd Plge Router	460	255
1632VSRK	Recip Saw 8.4A orb-v/spd	225	139
3050VSRK	9.6V cdls v/sp Drill Kit comp	256	138
3051VSRK	3050VSRK w/keyless chuck	266	145
1370DEVS	6" Random Orbit Sander	481	249
3283DVS	5" Random Orbit Sander	159	98
3283DVSK	3283DVS Kit complete	220	119

ELU BY BLACK & DECKER

Model		List	Sale
3338	2-1/4 HP v/spd Plunge Router	427	255
3304	1 HP var. spd Plunge Router	292	164
3375	3-1/8" Univ. planer 7.2 amp	313	155
3380	Biscuit jointer with case	542	248
4024	3 x 21 var. speed Belt Sander	322	184

BLACK & DECKER

1166	3/8" Drill 0-2500 rpm 4 amp	100	65
2600	3/8" Drill 0-1200 rpm 4.5 amp	142	89
1703	10" Mitre Saw w/73-770 blde	313	179
4011	1/4 sheet Palm Sander	82	59
79-034	Workmate 400	175	105
2694	7-1/4" Super Saw cat w/case	248	137
2695	8-1/4" Super Saw cat w/case	271	153

DAVID WHITE

LP6-20	Sight Level package - 20x	310	198
L6-20	Meridian Level - 20x	290	189
LT8-300	Level Transit - 26x	650	445
LT8-300P	above Level w/optical plum	769	525
LT6-900	Level Transit - 20x	389	245
ALT6-900	Automatic Level - Transit - 18x	549	385
ALTP6-900	above Level w/tripod & rod	600	438
ALP6-18HD	above Level w/tripod and rod	550	372

RYOBI SPECIALS

JP-155	6-1/8" Jointer/Planer	611	295
R500	2-1/4" HP Plunge Router	331	155
TS-254	NEW 10" Mitre Saw	397	198
TS-254K	above Saw with acc. kit & B&D 73-770 carbide blade	495	245
AP10	10" Surface Planer 13 amp	820	355
RA200	8-1/4" Radial Arm Saw	520	244
RE600	3 HP Plunge Router	431	209
BE321	3" x 21" var. spd Belt Sander	272	135
SC160	NEW 16" Bench Scroll Saw	261	144
TFD220VRK	12V cordless Drill Kit	325	165
JM100K	NEW Biscuit Joinler w/case	431	204
RS115	NEW4-1/2"v/sp Rdm Orb Sndr	134	74
BT3000	NEW 10" Table Saw	699	545
TSS220	NEW 8-1/2" Slide Comp. Saw	790	445
TS260	NEW 10" Compound Mitre Saw	454	245
DS1000	NEW Detail Sander	80	59
RS112	NEW Palm grip Random Orb Sndr	80	59
AP12	NEW 12" Bench Planer	840	425

LAMELLO BISCUIT JOINTERS

TOP 10	"Simply the Best"	699	559
STANDARD 10	"Professionals Choice"	499	399
COBRA	NEW Biscuit Joiner	Special	299

PORTER CABLE

690	1-1/2 HP Router 8 amp	240	134
691	1-1/2 HP Router D-handle	260	144
695	1-1/2 HP Router/Shaper	335	204
696	HD Shaper Table	185	123
351	3" x 21" Belt Sander w/o bag	245	143
352	3" x 21" Belt Sander with bag	255	144
360	3" x 24" Belt Sander with bag	330	182
361	3" x 24" Belt Sander w/o bag	310	178
362	4" x 24" Belt Sander with bag	345	188
363	4" x 24" Belt Sander w/o bag	330	185
315-1	7-1/4" Top Hdle Circular Saw	210	118
9315-1	315-1 comp. w/cs & carb bld	240	137
617	7-1/4" Pushhandle Saw	210	119
9617	617 comp. w/cse & carb blde	240	137
314	4-1/2" Trim Saw	240	135
97750	1/2" v/spd Hammer Drill w/cse	260	155
9629	Recip Saw var. speed 8 amp	250	144
9118	Porta Plane Kit 7 amp	360	205
7545	0-2500 Drywall Gun 5.2 amp	185	114
505	1/2 sheet Pad Sander	210	118
7511	3/8" var. speed Drill 5.2 amp	200	113
7514	1/2" var. speed Drill 0-750 rpm	210	118
7515	7514 with keyless chuck	215	124
7549	Top handle Jig Saw 4.8 amp	250	149
330	Speed Block Sander 1/4 sheet	103	58
555	Plate Biscuit Jointer with case	315	168
345	6" Saw Boss 9 amp	180	104
9345	345 comp. w/cse & carb blde	210	124
5116	Omni-Jig	400	255
9647	TIGER CUB Recip. Saw	195	115
9637	Full var/spd Recip Saw 8 amp	250	138
7519	3-1/4 HP Router 2 Handle	410	224
7518	3-1/4 HP 5 speed Router	475	259
7536	2-1/2 HP 2 Handle Router	355	199
7537	2-1/2 HP D-handle Router	375	208
7538	3-1/4 HP Plunge Router	410	224
7399	5.6 amp Drywall Cutout Unit	140	85
7310	5.6 amp Laminate Trimmer	150	88
7312	5.6 amp Offset Base Lam Trim	215	124
7319	5.6A Tilt Base Lam Trimmer	170	100
97310	Laminate Trimmer Kit comp	345	192
7334	5" Random Orbit Sander	210	119
7335	5" var. spd Rndm Orbit Sndr	230	129
7336	6" var. spd Rndm Orbit Sndr	235	134
73333	NEW Dust Collection system		24.50
693	1-1/2 HP Plunge Router Base	295	165
6931	Plunge Router Base	120	75
7539	3-1/4HP var/spd Plunge Router	475	262
9852	12V 3/8"Drill w/cse 0-1000rpm	270	149
9853	9852 with keyless chuck	270	149
9854	12V 1/2" Drill w/cse 0-360 rpm	280	159
8500	12V battery for above drills	Sale	39
	New Tools by Porter Cable		
332	Palm Grip Rndm Orbit Sander	109	64
333	above Sander with dust bag	125	74
352VS	3x21 Belt Sander w/bag v/spd	280	164
7116	24" Omni Jig	470	305
334	333 Sander with PSA pad	125	74
1700	Heat Gun 750-1000 degrees	110	75
550	Pocket cutter with case	330	198
7700	10" "Lazerloc" Miter Saw	634	389

FREE FREIGHT TO THE CONTINENTAL STATES ON EVERY ITEM • GIFT CERTIFICATES NOW AVAILABLE

FINISHING TOUCHES

Print this article

WHEN THE FRUIT'S RIPE, DUCK!

Witch hazel (*Hamamelis virginiana*), a native North American tree that rarely grows more than 20′ high, has the ability to shoot its seeds. When its fruit pods ripen, they eject their hard black seeds, propelling them up to 30′ and beyond!

Stickmakers unite on both sides of the Atlantic

British walking-stick maker Theo Fosssel, featured in the February 1990 issue of *WOOD*® magazine, founded a stickmaker's guild in England in 1984 that has over 1,000 members. Now there's one in North America, too.

According to Theo, who spends much time in the U.S. and Canada teaching seminars on the subject to would-be stickmakers, anyone with an interest may join. For a $15 annual fee, you'll receive a membership card, a cloissone emblem pin, and periodic newsletter as to what's going on in the field. For detailed information, write:

North American Stickmakers Guild
Membership Secretary
P. O. Box 6253
Alexandria, VA 22306.

Stickmaker Theo Fossel

Waste exchange: A possible boon to woodworking clubs

The Iowa Waste Reduction Center, at the University of Northern Iowa in Cedar Falls, wants to match waste. That is, they'd like to see the residues of various industries recycled rather than dumped into landfills.

To that end, the independent agency has initiated a By-product and Waste Search Service (BAWSS) that so far has helped 200 Iowa businesses match their by-products with other users. According to Susan Salterberg of the BAWSS, wood is one of the by-products to come up for disposal. "Much of it is sawdust or pallets, but I've seen quantities of some pretty good pieces of maple, walnut, and other great woods, too," she says. "This type of wood waste would be perfect for a woodworking club's community toymaking efforts. And it's free for the hauling. Just call us at 800/422-3109 to find out what's available and where."

Susan notes that many other states have similar programs, which you can locate through the state's Department of Natural Resources. Services like Iowa's BAWSS operate on funds from public landfill fees.

WHAT HAPPENED WHEN THE TREES CAME TUMBLING DOWN

By saying "Gone the way of the passenger pigeon," a person usually refers to something as extinct, as was the fate of that once-common North American species. But to those who were taught that the pigeon's demise in the 1800s stemmed from slaughter-level hunting, there's new evidence. According to author Donald Culross Peattie in his book *A Natural History of Trees* (Houghton Mifflin, Boston, 1991), several authorities cite the loss of habitat and food as the main cause of the bird's disappearance.

In early America, vast forests of American beech (*Fagus grandifolia*) covered a large part of southern New York, Ohio, Kentucky, Indiana, and central Michigan. The pioneers soon learned, though, that where the beech grew fertile soil lay. So they felled the trees to make way for crops. And as the great beech forests disappeared, so, too, did the passenger pigeons. The species, it turns out, relied on beech-tree nuts during their annual migrations, and flocks numbering in the hundreds of thousands sought the trees out. In fact, some scientists believe that the beech feast was the sole purpose for their trips.

Illustrations: Jim Stevenson Photograph: Mike Pattison

The American Toolmaker

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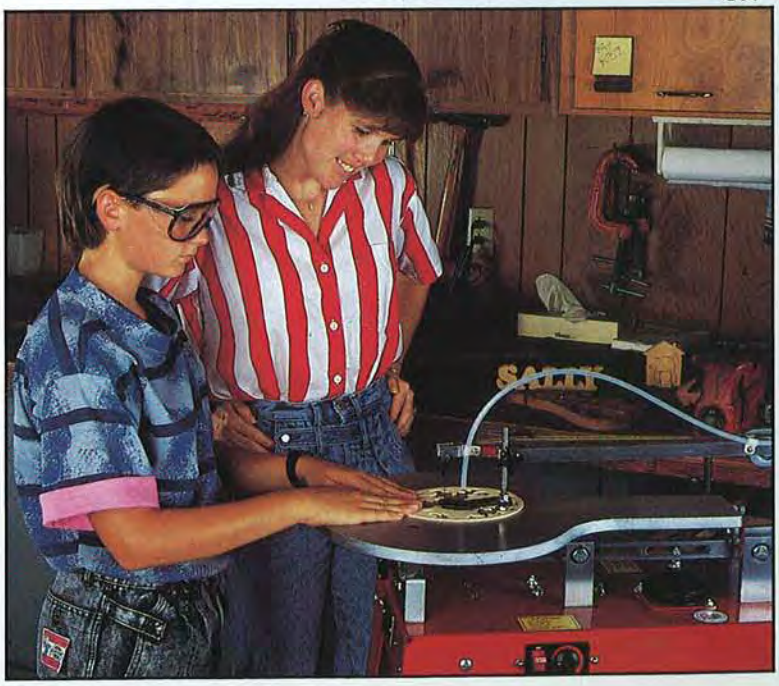

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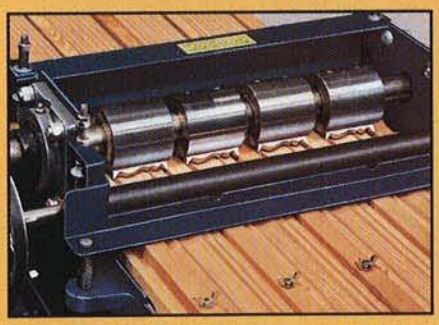

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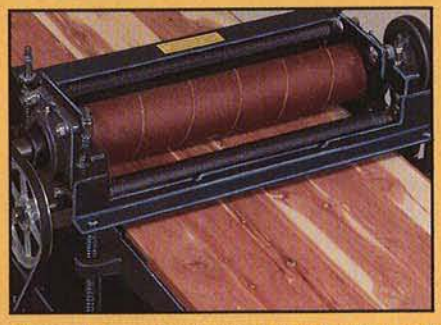

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